SOFTWARE COVERED: 3DS MAX • MODO • MA[illegible]INEMA 4D • POSER • VUE

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16

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The essential collection of handy, time-saving 3D tips

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How to add materials to models

• Feature

Hollywood CGI tricks exposed
Inside the visual effects of Iron Man 2, Percy Jackson, The Book of Eli and The Prisoner

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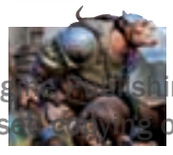
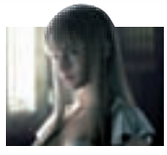


Turn classic art into 3D
Take a piece of traditional art and create a CGI version



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Create volumetric lighting with glowing beams of light

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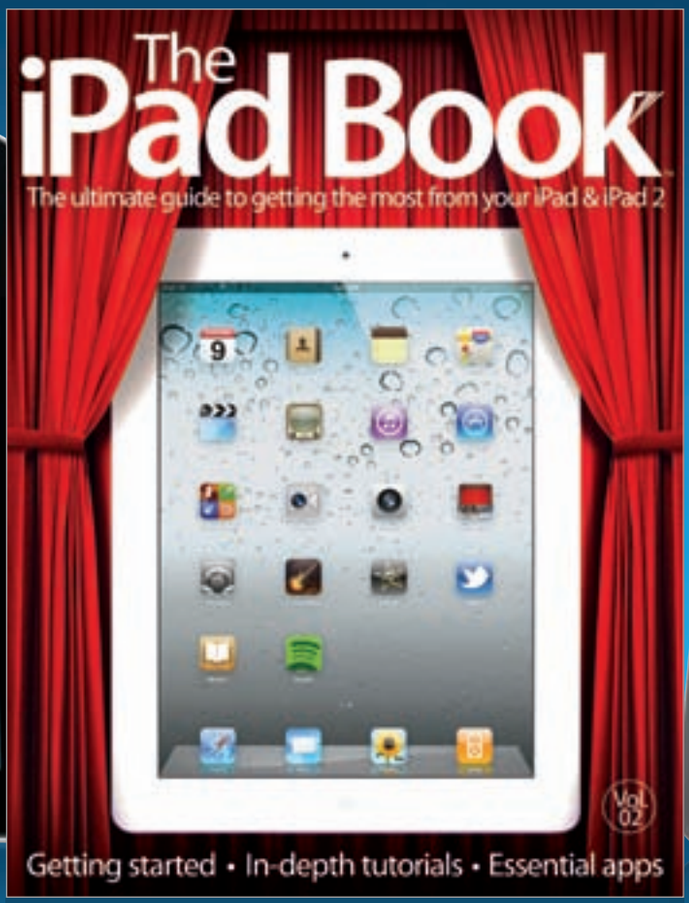
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Artist info

Carlos Ortega Elizalde

Personal portfolio site
http://stroggtank.cgsociety.org

Country Mexico

Software used
Maya, mental ray, Photoshop

Cover artist

No surprise to see this fantastic figure burning up the rankings on CG websites. Carlos has come up with a great character, dynamic pose and super composition.

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Welcome

to the magazine and 116 pages of amazing 3D

Every issue you can count on...

1. **116 pages of creative inspiration**
2. Behind-the-scenes guides to images and fantastic artwork
3. **A CD packed full of creative goodness**
4. Interviews with inspirational artists
5. **Tips for studying 3D or getting work in the industry**
6. The chance to see your art in the mag!

There's a distinct movie theme to some of the content this month. Firstly we talked to those crazy guys at Luma Pictures about their work on *Book of Eli* and *Percy Jackson*, then we checked out the complex visual effects that Double Negative did for *Iron Man 2*, before finishing our cinematic odyssey on the small screen with Cinesite's work on the remake of *The Prisoner*. Having been suitably inspired, you can check out the 100 hot tips feature where our resident 3D gurus spout forth valuable advice on Maya, Max, CINEMA 4D, Vue and Poser. Plus there's the regular dose of tutorials and all the Workshop technical help to get your grey matter going. Enjoy!

Duncan Evans, Editor

This issue's team of expert artists...

Dieter Meyer

Tally ho, chaps, it's chocks away for the first part of Dieter's Spitfire project using modo. This month, he looks at modelling

Christian Darkin

Working with MatchMover, Christian explains how to composite 3D footage which includes action

Paul Francis

Paul is our Poser expert and comes up with all manner of tips and ideas to make your Posing life as easy as possible

Lance Hitchings

Lance runs a design studio in the States, and also comes up with solutions for all your general Maya-related problems

Dominic Davison

Our resident Vue expert creates images that mortals can only dream of. Dom is here to reveal all about Vue

Daniel Lovas

The guy with CINEMA 4D in his DNA is a sci-fi enthusiast, but can solve any problem you may encounter

Viktor Fretyán

He's talking materials and lighting for you arc-vis fans out there. Now there's no excuse to go for concrete every time

Carlos Ortega Elizalde

Carlos is the man for stylised renders. This issue he explains how he created a centaur girl image that's been lighting up the forums

Greger Pihl

Greger shows how to take a piece of traditional artwork and turn it into a 3D masterpiece without upsetting the artist

Ryan Knope

When he isn't busy in his architectural design studio, Ryan is available to answer questions on 3ds Max and arc-vis

Ara Kermanikian

Ara is a beta tester for Autodesk's Mudbox so who better to review the latest version for the magazine

Satoshi Ueda

Soft and luscious – that's the image that Satoshi has come up with here. Check out the lighting and the, er, textures

Sign up, share your art and chat to other artists at

www.3dartistonline.com

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It's a jungle out there. Swing through it

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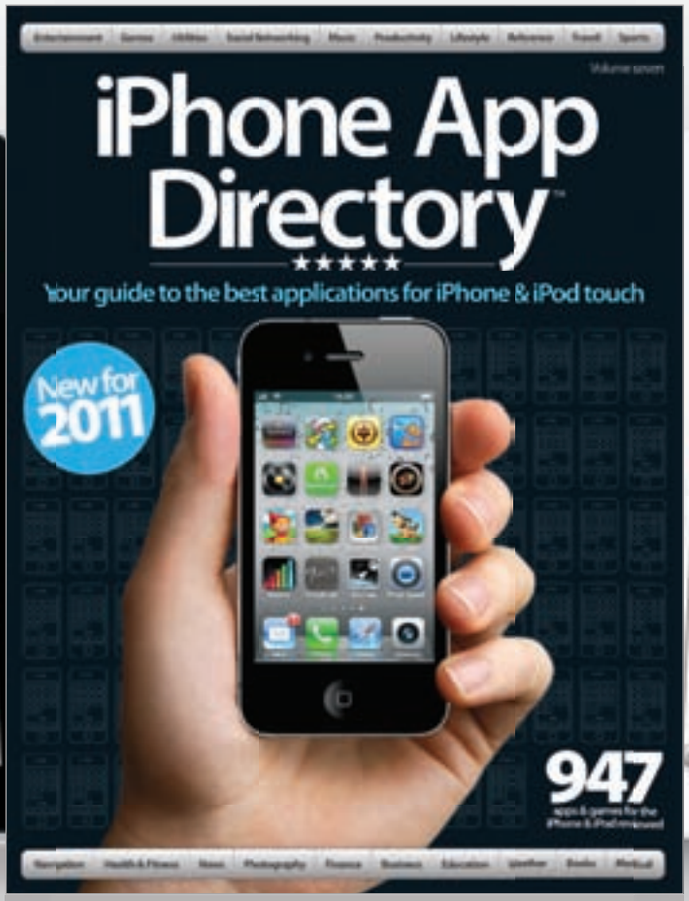

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Create volumetric lighting

"To help create the streams of light, a dim church was chosen as the background"

Four-page step-by-step walkthrough

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"The curtain has a translucent material. It is set the simplest way it could be – using Hard Wax mode"

Viktor Fretyán on creating textures for *Normafa House*. **Page 48**

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A beginners' guide on how to use textures and materials on your mesh-models

Cover story

Blender video: over 60mins of tuition

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On the Disc

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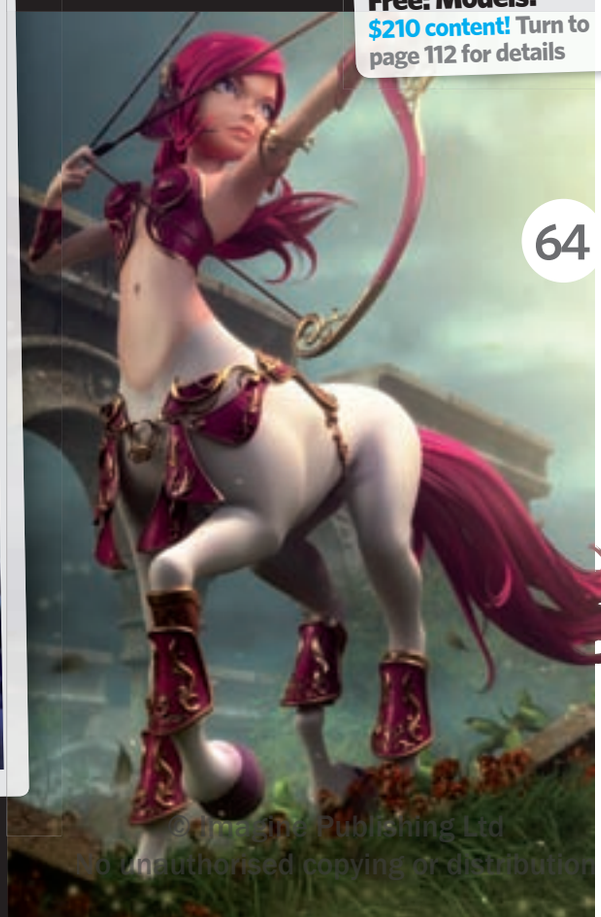

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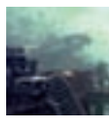
Check out the tremendous depth and detail in this scene



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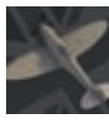
Two-part tutorial on creating a Spitfire – this month, modelling



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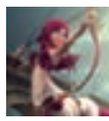
Fabulous lighting and colour in this stylish house design

64 Step by step: Model a cute fantasy figure
Half girl, half horse creature. Here's how she was created



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Continued overleaf

There's even more inside...

Turn the page to discover the interviews, reviews, industry advice and more that we've packed into this issue...

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You don't want to miss an issue and it will save you lots of cash

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See your artwork here...
Create a gallery today at 3DArtist online.com
Share your art, comment on other artists' images

"The main challenge that FX lead Joe Thornley faced was to create something chaotic and organic-looking"

Katherine Roberts of Double Negative on *Iron Man 2*. **Page 100**

workspace 3D

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How the visual effects for the remake of the classic series were created

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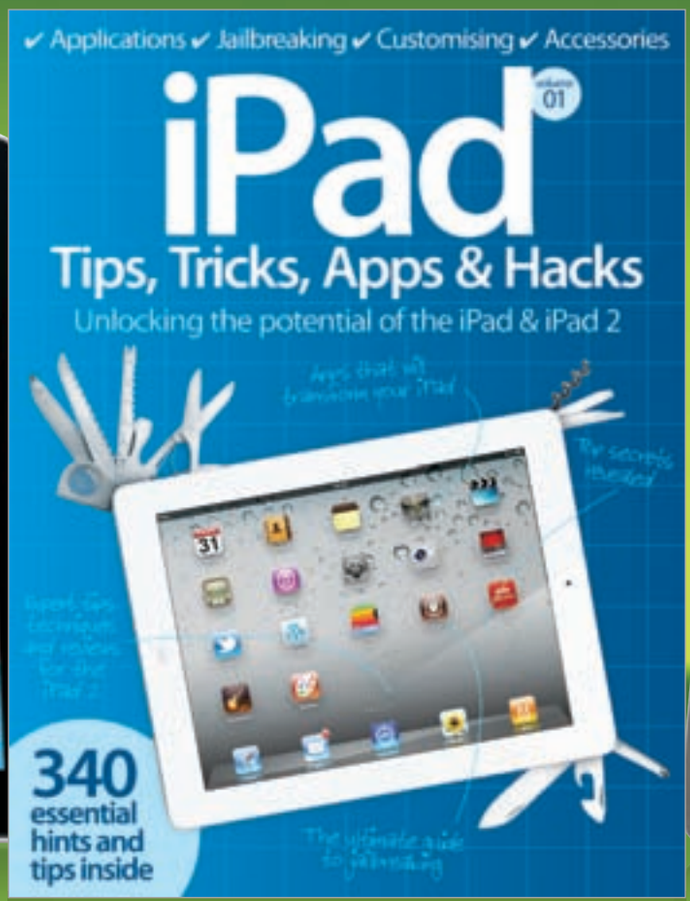

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WELCOME TO THE GALLERY

Nine pages of great artwork from the 3D community

Images we love!

Artist info

Gennady Guryanov

3DArtistonline.com

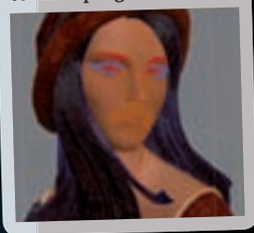
Username ILonion32_dll

Personal portfolio site http://ilonion.cgsociety.org/gallery

Country Russia

Software used 3ds Max, Photoshop

Work in progress...



"Recreating the image of a real person, I aimed for the main aspect to be the eyes. It took dozens of test renderings to explore the suitable lighting options and decide on the position of the eyes"

Gennady Guryanov, *Gutta-percha Girl*, 2010

Featured artists

Gennady Guryanov

Look at this image and it will look right back. It's all in the eyes

Marthin Agusta Simny

A *Harry Potter* inspired goblin. *Ssh* in the library!

Amarilis Alvarez

A beautiful image of a girl who is going all out to say it with flowers

Evgeny Zhuchkov

An arch-vis of an ultra elegant dining room with great detailing

Teodoru Badiu

A psychadelic gathering of one of this artist's very own characters

Vitaly Bulgarov

Check out this intense female robot with great surfacing effects

Maurice Panisch

Photoreal shot of an Audi S5 composited into a car park

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You'll be missing out on a thriving 3D community, but if you'd rather submit your work by email or post, here's how. Make sure your image is at least 3,000 pixels on the longest side, save it as a maximum quality JPEG or zip it up as a TIFF and email it to the address below. Please include your contact details! If you've created a Pixar-beating animation and want to see that featured on the cover CD, then save it onto a CD and post it to us. You can also send your images on CD. The addresses are:

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Comment on more great 3D art...

Head straight over to **www.3dartistonline.com**, register and you can leave comments for other artists. Some of the people featured here already have their galleries, so get online and join our club!

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"In this artwork, I wanted to create an old and grumpy character. I also wanted to create a strong atmosphere, so I chose an old library as the environment. The inspiration for this image came from Harry Potter and works by Jean-Baptiste Monge"

Marthin Agusta Simny, *Goblin Library,* 2010

The team Loves

"Lost in thought, this goblin is set in an ideal environment to emphasise the scale of the character"

Lynette News Editor

Artist info

Marthin Agusta Simny

Personal portfolio site http://threedsquid.cgsociety.org/gallery

Country Indonesia

Software used 3ds Max, ZBrush, Photoshop

Work in progress...

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Artist info

Amarilis Alvarez

3DArtistonline
Username Virtual_World

Personal portfolio site
http://virtualworld.deviantart.com/gallery

Country Cuba

Software used Poser Pro, Photoshop CS4 Extended

Work in progress...

"Most of the time, I create simple renders with minimal or no post-work at all to promote my characters, but this time I wanted to create something special. This image was created using my new character Farissa for V4 (DAZ). It was rendered in Poser Pro and post-worked in Photoshop CS4 Extended"

Amarilis Alvarez, *Blue Flowers,* 2010

The team Loves

"The vividly coloured flowers complement the model beautifully. A good combination of Poser and Photoshop"

Luke Senior Designer

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Artist info

Evgeny Zhuchkov

3DArtistonline.com

Username friz 3d

Personal portfolio site
www.friz3d.ru

Country Russia

Software used 3ds Max 2009, V-Ray, Photoshop, After Effects

Work in progress...

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The team Loves

Fabulous colours and use of materials in this sumptuous interior visualisation. Great detail

Duncan Editor

This is an interior architectural visualisation of a dining room using 3ds Max with some post-production in Photoshop and compositing in After Effects

Evgeny Zhuchkov, *Dining Room,* 2009

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Artist info

Teodoru Badiu

3DArtistonline.com
Username Theodoru

Personal portfolio site
www.theodoru.com
Country Austria
Software used CINEMA 4D, Photoshop

Work in progress...

> Illustration based on one of my characters. It was created with CINEMA 4D and MoGraph and I wanted to explore the illustration possibilities offered by MoGraph

Teodoru Badiu, *Fring Bunch,* 2010

The team Loves

> A wonderfully original style makes this abstract composition unique. Great colours too

Luke Senior Designer

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Artist info

Vitaly Bulgarov

Personal portfolio site
www.bulgarov.com
Country Moldova
Software used Softimage XSI, ZBrush, Photoshop

Work in progress...

The team Loves

"Hard surface sculpting in ZBrush is demonstrated perfectly in this female robot character"

Lynette News Editor

"This work was my test of new features in ZBrush 3.5. I wanted to make something semi-organic looking, but still a metal character. So I thought a robot girl might be something cool to work on"

Vitaly Bulgarov, *Robo Girl,* 2009

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Artist info

Maurice Panisch

Personal portfolio site
www.maurice-panisch.de

Country Germany

Software used CINEMA 4D, Photoshop, Lightroom

Work in progress...

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> A photographer friend made the backplate picture and also an HDRI sphere of the garage, which made it easier to match the reflections. The rendering was done in CINEMA 4D with the Advanced Render and Linear Workflow and the help of the DeGamma plug-in. The post-work like colour correction and small layer enhancement was done in Photoshop

Maurice Panisch, *Audi S5 at Calumet*, 2009

The team Loves

> Good work on the car modelling and on compositing it into the garage with reflections

Duncan Editor

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Framing female beauty

This female beauty by ArTTalk.ru member Fish-KA is a great example of the kind of representation the forum is after

Krishnamurti Costa's representation of an old tribal woman is an interesting take on cultural female beauty

ArTTalk.ru challenges artists to turn to historical roots for inspiration for art challenge

Noticing the wealth of artists portraying fair women in their art, Russian forum ArTTalk.ru is challenging the CG community to a simple task: to represent female beauty as a national legend.

The idea behind the challenge is to encourage artists to look at history and ethnicity to inspire their art. Keeping the theme simple, participants can take any iconic female character or legend from any culture, past or present, to inform their representation of beauty. The best entries are going to be considered for publication in an art book that ArTTalk.ru hopes to publish in the near future. So not only will you be competing for a fantastic ZBrush licence – with free upgrade to version 4 included as part of the prize – but also for the chance to see your work in print.

With the contest split into three main streams – 2D, 3D and traditional – there will be two winners at the end that fall under the general genres of 2D and 3D, regardless of whether the work is digital or traditional media. ArTTalk.ru will also give additional time to those whose artworks are deserving of print but need a little work to be fully complete after the competition deadline – a very generous offer and a great opportunity.

The challenge is hosted on the Russian-speaking forum, however ArTTalk.ru welcomes participation from entrants around the world and the rules have been translated to English to allow for broad participation. If you can't navigate the Russian forum, then you are allowed under the rules to use any other convenient CG forum to post your work-in-progress. The important thing is that you have this WIP reference in a thread to be able to enter for a chance to win, as you will be asked to submit the link to this in your final entry.

At the end of the contest, all artists who wish to enter their work must email their final images to ArTTalk.ru within five days of the deadline. Refer to the rules and submission guidelines on www.arttalk.ru/articles/content/ethnique-2010-legend-a-woman-contest for full details.

Prizes

Best 3D work (3D art, sculpture, arts and crafts)
ZBrush licence with free upgrade to version 4
Forum medal
15 skill points
Autodesk T-shirt

Best 2D work (2D art, painting and graphics)
ZBrush licence with free upgrade to version 4
Forum medal
15 skill points
Autodesk T-shirt

Competition deadline: 13 July 2010

> "The best entries are going to be considered for publication in an art book ArTTalk.ru hopes to publish"

3DArtist online.com

Want to discuss your artwork, find some inspiration or swap tips with fellow artists? Head to **www.3dartistonline.com/forum**

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3D events update

A guide to forthcoming events in the 3D art industry calendar

CFC Worldwide Short Film Festival

Date 1–6 June
Location Toronto, Canada

The Canadian Film Centre film festival is a premier venue for the exhibition and celebration of short films in North America. One of only three festivals in Canada, its annual submission total surpasses 3,000 entries from over 80 countries.
www.worldwideshortfilmfest.com

Venice Film Festival

Date 1–11 September
Location Venice, Italy

Directed by Marco Müller, the 67th Venice Film Festival, organised by La Biennale di Venezia, will take place in Rome at Venice Lido. Its aim is to raise awareness and promote the various aspects of international cinema in all its forms.
www.labiennale.org/en/cinema

IBC 2010

Date 9–14 September
Location Amsterdam, Netherlands

An event for professionals involved in the creation, management and delivery of entertainment content worldwide, IBC is an annual event which last year attracted more than 45,000 visitors and over 1,300 exhibitors, including the latest developments in stereoscopic 3D.
www.ibc.org

Createasphere/EXPLORE Entertainment Technology Exposition

Date 21–22 September
Location New York, USA

Formerly known as HD EXPO, the Createasphere/EXPLORE Entertainment Technology Exposition is a showcase for previewing and learning about the latest groundbreaking technology for the content creator, where future technology and creative vision merge.
www.createasphere.com/september/index.html

Masterpiece

Gothic drama

Technical director for Pixar Animation Studios, Neil Blevins, creates hybrid sci-fi work for Greek metal band

Neil Blevins www.neilblevins.com

Neil is a CG veteran who gives back to the community through his inspiring art and tutorials.

Creating 3D/2D hybrid images of creatures, robots and alien landscapes in his spare time, his art attracted the attention of God. Fear. None., a Greek metal band. Approached with a brief to create a CD cover of a large, ominous building, Neil was excited by the suggestion of incorporating gothic cathedral type elements and worked hard to give the image a dramatic perspective. Using a mixture of 3D, hand painting and some manipulated photographic elements, the image was rendered in mental ray in 3ds Max before all the painting work was done in post in Photoshop.

Neil was able to really build up character in the building by introducing gothic elements to the structure

Accelerate in the style of Syd Mead

Put your vision of the future to the test in the NVArt 5 competition on CGTalk

The prestigious NVArt competition is now in its fifth year. The theme this time round is to create images of future transport in the style of the living futurist legend that is Syd Mead. This is an awesome opportunity all in itself, before even mentioning the impressive $35,000 worth of prizes which are up for grabs. First place will receive $10,000 in cash, plus two NVIDIA Quadro FX 5800, 4GB, 240 CUDA Processors (or the latest model) valued at $7,000, with equally fantastic prizes for second to fifth placed winners. Pay homage to the master of futurism by submitting your own vision of future modes of transport before 30 June. More information can be found on CGSociety at http://events.cgsociety.org/NVArt/05.

Free portfolios

CGArena launches free portfolio service

Take advantage of CGArena's new free portfolio and resume service to promote your work and get that job. The facility will allow for up to 24 images to be uploaded into a gallery; shown as thumbnails, they will click to open in a pop-up preview window. Show as many of your personal and professional details as you wish, and add your CV for download so work opportunities can find you. With the portfolio URL formatted http://yourname.cgarena.com, these free portfolios are well worth the minimal effort required to manage and promote your work. Visit www.cgarena.com/portfolio.

3D Sketchbook

Idea generation

Character modeller for Ubisoft Montréal, Magdalena Dadela, uses ZBrush throughout her workflow

Magdalena Dadela http://mdadela.com/blog

Digital artist Magdalena Dadela specialises in high-resolution character modelling, sculpting and texturing. Currently employed as a character modeller at Ubisoft Montréal, Magdalena uses ZBrush to generate ideas and work on concepts quickly to find out how models will look at an early stage in her projects. "I usually use a very basic human mesh to rough out the proportions in ZBrush and then re-topologize the model and create additional base meshes for the clothing within XSI, if necessary," Magdalena explains. "I then go back to sculpting the new mesh and posing it within ZBrush."

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Free 3D Resources

Free 3D tools and assets

Speed up your workflow and the hunt for great textures with these fine, free resources

Smart IBL

Take the fuzziness out of your final renders by using the Smart IBL plug-in from HDR Labs

Web: www.hdrlabs.com/sibl

Smart IBL has been designed by HDR Labs for artists and developers to work with every 3D application and be flexible enough to power an entire company pipeline. Putting optimised IBL setups on a single button, it represents a unified approach to turning your HDR collection into lighting solutions for your 3D scenes. Better still, it's completely free!

Textures galore

Thousands of high quality and large resolution textures for adding realism to all your 2D and 3D projects

Web: www.texturearchive.com

Created in response to the demand for a website to provide unique high-res textures for all artists' 2D and 3D projects, TextureArchive.com hosts a collection of over 3,500 metal, wood, stone, water and panorama images – plus more besides. Simply sign up for your membership and login to download from the extensive bank of gratis textures today.

Character inspiration

A useful source for free images to specifically help with your digital figurative and portrait art

Web: www.characterdesigns.com

Best known for its extensive figure photo references, plus event and texture photosets, CharacterDesigns.com encourages artists to pursue their figurative art by providing useful resources that were previously difficult to find online. The collection of high quality, free images is ever expanding, so browse today to get your fill of character-based inspiration.

Train as you go

Online software guru, Digital-Tutors, offers on-the-go training for the iPhone and iPod touch

It truly is a hand-held revolution for Digital-Tutors: mobile access that gives members under one of the company's subscription training plans the opportunity to browse and watch thousands of interactive lessons while on the move. Active subscribers can view their account, watch feature content and search for training. A Guest Pass is also available, which allows users to watch a small selection of pre-chosen courses, as well as Digital-Tutors' 'Daily Dose'. Simply download the iPhone App to watch hand post-produced tutorials with zooming features that will make your mobile learning experience second to none.

More information on Digital-Tutors Mobile Access can be found on www.digitaltutors.com/09/iphone.php. You can also try out the online training library for a free trial period to check out its benefits.

Digital-Tutors has 1,092 videos currently available on the iPhone

work in progress

Little Town

When 3D artist Renat Salimgareev isn't busy with his job at an advertising agency, he is stylising a provincial Russian town from the 70s/80s

Renat Salimgareev http://aci-roy.cgsociety.org

Renat began work on *Little Town* some time ago, yet still devotes much of his free time around his day job at an advertising company to ensure he sees it through to completion.

With his favourite tasks being modelling and texturing, Renat started this scene off with the creation of a Russian ZIL truck, followed by a car. Establishing a style with these vehicles, he could then start building up a collection of other objects: houses, trees, etc. To achieve the most pleasing results, he created several variants of each object, choosing only the best for his project.

Renat is currently finalising work on the tram and the rear houses, using a selection of software including LightWave, 3ds Max, V-Ray and Photoshop. "The project is far from finished," Renat told 3D Artist. "I have lots of interesting ideas which I want to represent."

There will eventually be people in this little town, but Renat will concentrate on them later

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Tools of the trade
UVLAYOUT

Produce high quality, low distortion UVs in next to no time

Used by artists of all levels, UVLayout is helping students, hobbyists and professionals in the games and visual effects industries worldwide, create and edit UV coordinates for their 3D polymeshes and subdivision surfaces.

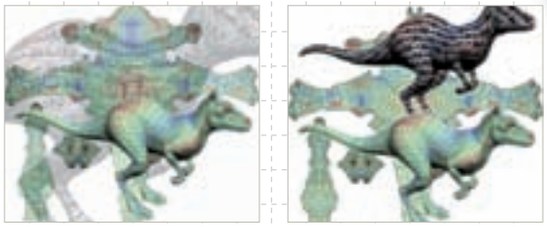
With a unique approach, UVs can be created with this tool in high quality and with low distortion, and in much less time than traditional methods. Its unique approach cuts the object into pieces that are then flattened out; a dynamics-based algorithm is used to spread the UVs to ensure minimal stretching, compression or skewing of textures when applied to the 3D object.

Now in version 2.06, users can download UVLayout for Windows, Mac OS X and Linux platforms. Priced with students, hobbyists and professionals in mind, you can add UVLayout to your tool belt from between $100 and $300, depending on which is applicable to you.

Try UVLayout for free for 40 days at www.uvlayout.com to find out how it can speed up your workflow.

Major features of UVLayout:

- OBJ import and export
- Edge-loop detection for quicker UV seam selection
- Symmetry editing for faster flattening of symmetrical meshes
- Edge straightening on shell boundaries and interiors
- Flattening brushes for local tweaks of the automatically generated UVs
- Auto packing of UV shells to minimise wasted texture space
- Auto stacking of similar shells for shared texture space usage
- Subdivision surface calculations based on limit surface shape
- Unlimited undo of all editing functions
- Plug-in interface for integration into other applications



The red through green to blue colour coding shows the distortion – stretching or compression – remaining in the final flattened UVs

Software shorts
Get the lowdown on updates and launches

DAZ 3D support in Vue 8.4

E-on software has made the ability to import DAZ 3D models into Vue a new native feature in version 8.4. Available immediately, users can now easily compose character-filled images with built-in Poser and DAZ 3D character rendering. Vue 8.4 is available at no cost for existing Vue 8 Frontier users. Visit www.e-onsoftware.com for further details.

Animate Pro 2 announced

Toon Boom has announced a new version of the award-winning software that will propel animators into a new world of creative freedom. Animate Pro 2 is complete professional software for content creation, animation and compositing for all styles, within a single desktop application. For full details, visit www.toonboom.com.

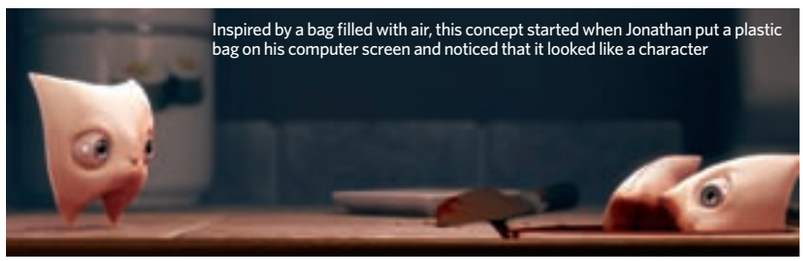
Artist spotlight

Weirdly wonderful

Senior animator at Activision's Beenox, Jonathan Simard unwinds after a hard day's work with great music and a spot of character modelling

Jonathan Simard www.joofdeath.com

Animator of seven years, Jonathan is constantly thinking outside the box, avoiding all potential clichés and using CG as a tool for infinite creativity. Finding most of his inspiration in the shower, water droplets often spark an idea for a new character. His bed is also a place of idea generation, as moments before he falls asleep, a crazy concept will pop into his head. "I don't know what's going on with these two places," Jonathan told 3D Artist. "It's where my mind stops working in a coherent manner." His eternal quest is to find the next insane character design that will surpass all others.



Inspired by a bag filled with air, this concept started when Jonathan put a plastic bag on his computer screen and noticed that it looked like a character

3DArtist online.com

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A

B

C

A Lilly in the Fizzy Village
» Teodoru Badiu
Theo says: "This is an image from a personal, ongoing project called Lilly in Pixyland. The scene was both modelled and rendered with the software, Modo."
We say: An absolute psychedelic trip with these colours.

B Spitfire
» Daniel Stringer
Daniel says: "My original attempt at this image was too dark, so here's a brighter version. It was modelled in 3ds Max and rendered with mental ray."
We say: Lots of atmosphere and a period feel to this hangar-based image.

C Freedom
» Morteza Najafi
Morteza says: "This still image took four days for me to create and only 20 minutes to actually render the final image. I hope you like it."
We say: Great sense of expression and drama captured in this image.

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Picture of the month

Want to know what your fellow 3D artists have been creating this month? Check out the best of the online gallery

D

D Lionel Messi
» **Nori Tominaga**
Nori says: "Caricature of world footballer, Lionel Messi of Barcelona and Argentina. I was trying for a stylised and cute look for 'little Messi' as he scampers across the field with his tiny legs."
We say: Excellent perspective and idea. I'd work on his face a bit more, but this is pretty good.

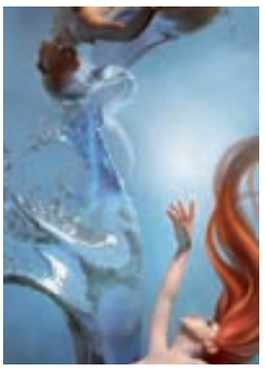
Pictures of the week

THESE ARE THE IMAGES THAT WERE AWARDED PICTURE OF THE WEEK IN THE LAST MONTH

IJN Makoto 3
» **Sungho Lee**
Sungho says: "This scene of destruction is a ruined city with the wreck of an aircraft carrier and other ships scattered throughout."
We say: It's a spectacular mass of mangled metal and ruined technology.

Jungle Book
» **Nenad Pantic**
Nenad says: "This is a cover page I did for an upcoming release of a domestic translation of Rudyard Kipling's *Jungle Book*. For the cover page, I chose the scene when Mowgli casts away Shere Khan and the wolves loyal to him with fire."
We say: Excellent colours and great composition with all the cherished characters from the book present.

Toy Loco
» **Feodor Ivaneev**
Feodor says: "This was a model of a childhood toy that I decided to bring back to life."
We say: Splendid materials work to get the plastic and paint feel of the toy just right.



Dream
» **Alexy Kashpersky**
Alexy says: "I want to show you my artwork *Dream*. It took ten months to create. It provided a break from my diploma work at university, and was put off by many interruptions, but all that time, it lived permanently inside my head."
We say: Super use of form, composition and colour. One of the images of the year.

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iTUNES SEARCH: 3D ARTIST

iTUNES SEARCH: RETRO GAMER

iTUNESSEARCH:DIGITALARTISTMAGAZINE

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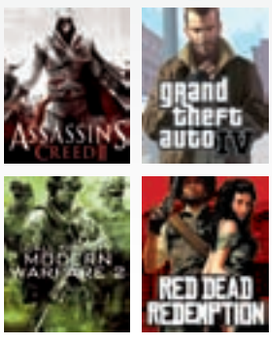

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Lynette Clee talks to Michael Bengtsson, CEO and VFX supervisor at Meindbender, who believes that a happy team is the key to creating entertaining animations

Mind-bending animation

Company Meindbender Animation Studio
Founded 2006
Company website www.meindbender.com
Country Sweden
Software used Maya, Mudbox, Photoshop, After Effects
Expertise Animation/story and character development
Client list Cartoon Network, Tele 2, Dent, Gammeldansk

> “...it all comes down to knowing what you want and studying the real thing. In short, there was no magic ‘make good clay’ button in Maxwell”
>
> **Michael Bengtsson** is the CEO/VFX supervisor at Meindbender Animation Studio

Meindbender Animation Studio is a small company set in Sweden developing stories, characters and animations with a great sense of humour and expression. Starting out in 2006, the company basically took on everything back then, also doing CG alongside filmed work and so on, but the hearts of the team always lay within the cartoon sector. Which is where we find them today. The team always knew this is where they wanted to be; now there, they can fully focus on what they like to do best – and it shows in their work.

Michael Bengtsson is split right down the middle as both CEO and VFX supervisor for Meindbender. Although this may seem like an impossible combination to maintain, Bengtsson tells 3D Artist that it works well for a smaller company such as this – although admittedly it doesn't leave him with much free time for other things.

3D Artist: *Can you tell us how and why Meindbender was set up, and what the main aims of the studio were when you first set out?*
Michael Bengtsson: To make a really long story somewhat fit better within the

A Jean Bide is a character developed by Meindbender. This is also one of our earliest frames rendered in Maxwell

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Ⓓ Olov Burman, creative director, making final touches on a model

magazine, and also not to bore you and the readers to depths of great magnitude, the short version goes like this: the four founders of Meindbender, Olov Burman, Calle Halldin, Tony Österlund and me, first met when we studied 3D animation at university in Trollhättan, Sweden. We all shared the same passion for animation and we also complemented each other well, skills wise. Tony was a generalist, Calle focused on animation, Olov had storytelling near his heart and I was completely obsessed with shading, lighting and rendering. Back then, we didn't know much of anything about running a company, though, but being the dedicated (and somewhat naive) artists we were, we didn't care and set up Meindbender right after we graduated. I mean, how hard could it possibly be to run a company?

Off on our journey, with great dreams of fortune and wealth doing full feature films, living the dream and being creatively free and unbound, reality hit us. The rent had to be paid and food was unluckily a necessity, so we had to take on whatever assignment we could get. Chaos was a fact of life and the coming years were to really test our dedication, love for the craft and, to be perfectly honest, our will to stay together.

> "Some employers may argue… that happiness isn't the only way to profit, but doing the work we do, trying hard to entertain people is, in my opinion, next to impossible if the source itself hasn't got enough positive energy"

Fast forwarding to the present time with all the past ups and downs now behind us, being better artists and more experienced to run a company, things have definitely been worth it. Maybe most importantly, we know as a group what we are really capable of, as well as our ability to deliver when it counts. Our passion for animation never crumbled; it grew stronger.

3DA: *What was your background before Meindbender and how did it help in establishing a new company?*

MB: I can't speak for all of us, except that I know that everyone has always been in love with artistry since we were very young. For me, though, I had a job as a machine technician at a factory for many years. How can this even remotely relate to running a 3D-animation company, you may ask? But, for me, this has made a big difference. There is nothing wrong with factory work in any way, but going into the night shift at this particular place – oh my, I'm not exaggerating when I say it really felt like entering hell for eight hours. Running around like crazy between living-dead machines holding an oversized wrench, at a decibel level that was near ear-shattering; getting yelled at by bitter bosses who had worked there for way too long for their own wellbeing… it was not anyone's kind of fun. The time spent there, though, really made

Ⓑ An underwater sequence with the company mascot, Bobby Meindbender

Ⓒ One of Meindbender's earlier works, for Down Film, where the camera travels into the human body

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Key Project 1

'Football vs Rabbit'

'Football vs Rabbit' was the short that really set things in the right direction for us. Hiding under a rock and previously more or less completely unknown internationally, we released it on the internet. We kind of liked the result ourselves, but the feedback was more than we ever expected. A few weeks in, the telephone started to ring and job offers started to appear on a whole other level than we'd previously experienced. We can laugh about it now, but unluckily the first 48 hours of downloads of the short actually made our web partner close our account due to breaking the maximum amount of downloaded data per month. Worst of all, this included our precious mailbox, so in between all the joy, it felt very ironic that companies that had now noticed our work and wanted to get in contact, didn't know how to.

The guys and gals at Cartoon Network didn't give up, though, and found Calle Halldin's (animation supervisor at Meindbender) old Hotmail address, adding him via MSN Messenger, of all places. As we weren't expecting anything like that quick a response, Calle first thought it was a joke and tried to call their bluff for a while, thinking it was a friend who wanted to fool him.

E Greta receives a cute puppy as a Christmas present – but Greta, as always, is not that easily pleased!

F Screenshot from 'Animated Ringtone' with Bobby Meindbender in the lead role

me realise that pain is very relative to the environment you are surrounding yourself with. If I have a bad day now – if it feels tedious to perfect that last pixel on a certain texture, or we are having trouble rendering something out – it feels good just to know how bad things really can get. I really shouldn't complain, ever.

3DA: *It all started from a short movie called 'Football vs Rabbit' which you posted on CGSociety in 2007. What was the vision behind this, and what effect did it have?*
MB: This little test was really the turning point for us. Over the years, we had developed a style that we really wanted to test out. So we made the short in between other commercial assignments. When we released it, everything changed. Suddenly we started to get work from studios and companies we had previously only admired, and this was also the time when Cartoon Network contacted us, which has been a great partnership for a couple of years now.

3DA: *Meindbender's storytelling shows great sense of humour. What is it like working at your animation studio and how do you keep motivation and inspiration levels up?*
MB: We are all really a bunch of very childish individuals, of course, and Olov, our creative director, is a real wizard when it comes to spitting out crazy ideas. As far as company management goes, though, I make sure that everyone is happy. This may sound like a simple approach but I really think it's the key to everything. Being happy – genuinely happy – not only as artists but also as a group, and all the way down to each individual's personal level, is what leads to good results. Some employers may argue this, that happiness isn't the only way to profit, but doing the work we do, trying hard to entertain people is, in my opinion, next to impossible if the source itself hasn't got enough positive energy.

3DA: *The Plasticine and stop-motion look to Meindbender's work really gives it an edge. How do you emulate this traditional animation feel in CG?*
MB: We used Maxwell Render from Next Limit and Rendernet (**www.rendernet.se**) to render the material out. Speaking of Maxwell, it's an unbiased renderer, which means that it uses a physically correct approach to create images. Other renderers can achieve equally good results, but the setup is much faster in Maxwell, allowing us to do more with a smaller team. Whichever renderer you choose to use, though, it all comes down to knowing what you want and studying the real thing. In short, there was no magic 'make good clay' button in Maxwell. By the time this goes to print, though, this may have changed...

3DA: *What are the main services you offer and areas of CGI that you cover?*
MB: We aim to go the extra mile with both stills and animations, creating compelling imagery that assists architects and developers all the way from concept design through to successful bid applications and marketing tools.

3DA: *How long did it take Meindbender to perfect the natural clay look?*
MB: The actual setup in Maxwell just took a day or two.

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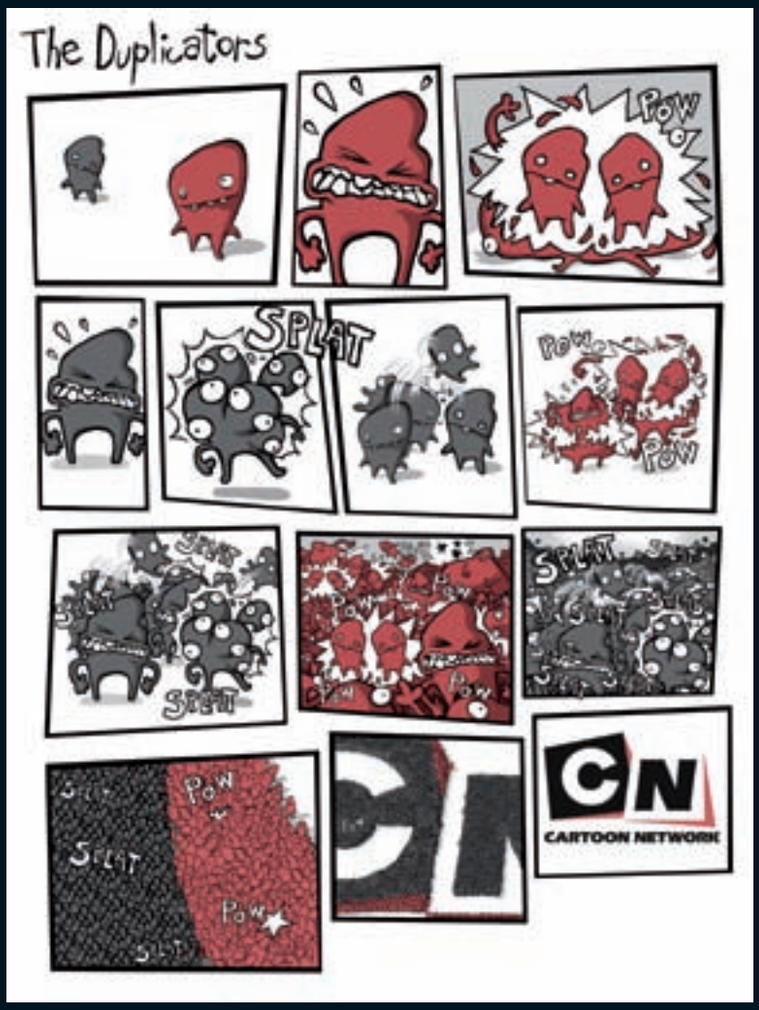


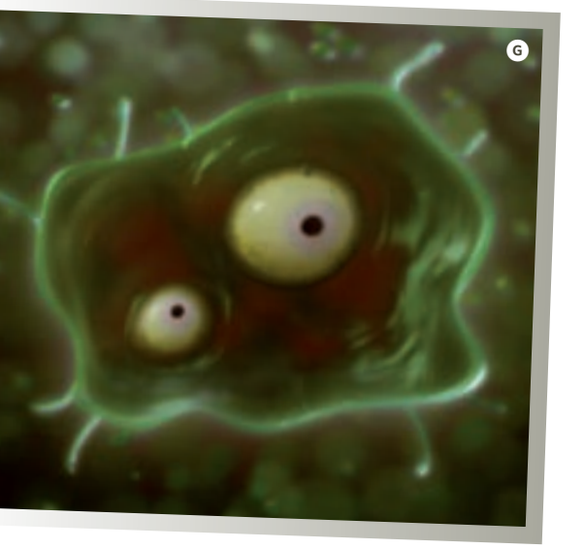
Key Project 2

'The Duplicator' series

This was the second project we did for Cartoon Network after 'Gifts for Greta', and has been a very important stepping-stone for the company. Not only in terms of publicity, but it has also been important in the sense that we have further been able to work on alternative forms of rigging, shading and animation. Like all journeys, though, it was not without problems. Almost half of the development time went into working out the new pipeline. Luckily, we got lots of great support from Next Limit, the makers of Maxwell, the renderer we finally decided to go for. CN was also very supportive and wanted to focus more on quality rather than a tight deadline, which in the end led to a result that we feel proud of.

With the new pipeline working, we are now continuing the cooperation with CN, doing new air IDs for them. This time it's about a seriously disturbed greedy pirate and his somewhat smarter parrot. Apart from that, we are discussing more shorts based on 'The Duplicator' theme. To summarise, we feel really secure now with Maxwell Render, producing our rigs etc, and we are – as this goes to print – working day and night to try to take things to the next level.

3DA: *What are the tools of your trade, and how are they used in the making of one of these shorts?*
MB: We mainly use Maya, Mudbox and Maxwell for most of our work. For post we use After Effects, but we are looking into Nuke because of its great integration with 3D applications. As I'm an old Adobe fan, hopefully they will address this in the near future, though.



3DA: *Many people ask why Maxwell Render. Can you tell us your opinion of this renderer, why you choose to work with it, and how you work around its long rendering times?*
MB: Well, in all irony, we have heard that question once or twice, too. I used to work with other renderers before, but after switching I really can't go on enough about why we think the software is awesome. To name a few things, though, firstly it's because of the stability. We use quite a lot of high-polygon geometry in our work, making our scenes very memory intensive. I have yet to be able to crash Maxwell due to this. It may take a longer time, but it always delivers. Second: Multilight. The ability to render out the lights separately means that we have eliminated most of the tweaking time before launching the final render, as we do all the lighting balance in comp. Other than that, Maxwell has a really good feature that lets you continue to render a sequence after you have stopped it once. For example, depending on the scene, let's say that Maxwell needs to achieve 20 sample levels before the image is completely free of grain. Again, as an example, this takes three hours to achieve. To render them up to the first 12 sample levels (SL), though, only takes a few minutes, as every sample level approximately doubles the render time. At 12 SL, even though it's a bit grainy, we can clearly check that it looks how we want without any bugs, collisions of geometry, etc. Once approved, we then take those images into comp and start doing the post work needed. At the same time, we send the SL 12 images to a render farm and continue rendering them up to the final SL level. Before, we always had to wait for the rendered frames to be finished before going into comp. This way it feels really nice to be finished before the rendering is done.

3DA: *How many staff work at Meindbender, and how has it evolved since 2006?*
MB: On site we are still a small team of seven people. But our focus from the beginning was to scale the company by gradually connecting the best possible artists from around the globe to the company. As the scale and expertise between different projects varies greatly, this meant that we couldn't move all those talents over here, so a cluster-based organisation was the better approach for us. Sometimes we can pull a certain project off with the core group, but often projects require up to 20 people, so we needed to find a way to be able to handle that. This led

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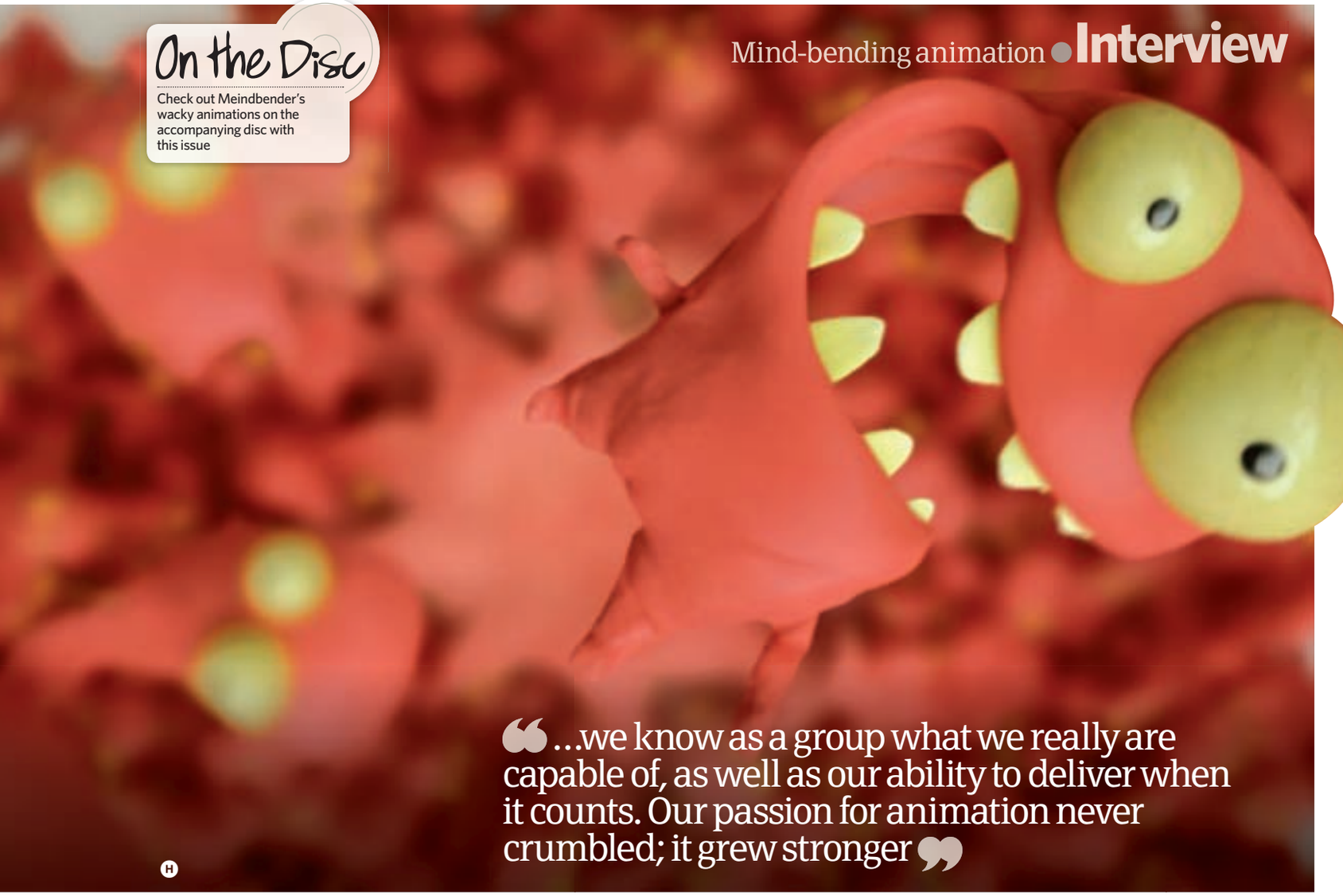
On the Disc

Check out Meindbender's wacky animations on the accompanying disc with this issue



> "...we know as a group what we really are capable of, as well as our ability to deliver when it counts. Our passion for animation never crumbled; it grew stronger"

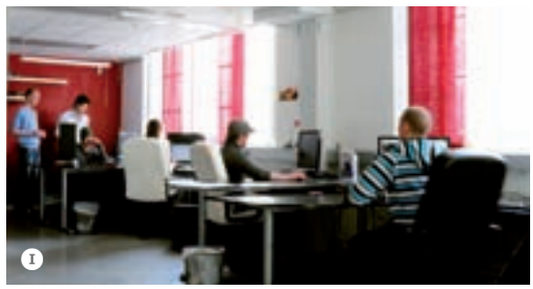
H

to the development of tools that enabled us to easily manage projects over the internet in an effective and secure fashion. This approach may change one day as we enter the full feature domain, where a bigger central organisation plays a more vital role. But, for now, this works just great as it keeps both the combined skill level up and we hope also makes us pretty much unsinkable during an economic recession.

3DA: *How do you continuously develop methods and infrastructure to lower technical barriers and free up your artists' time to dedicate to what they do best?*
MB: This may sound superficial, but what it basically means from our standpoint is that we dedicate lots of time to minimising the type of work that isn't creatively inspiring to us as artists. This revolves around constantly making plug-ins to streamline work, but also eliminating tasks that we perceive as hard and/or, for lack of a better word, boring.

3DA: *Can you tell us of some of the problems you face when creating animations for clients, and how you overcome them to meet your deadlines and briefs?*
MB: Our biggest enemy time-wise, as well as our biggest promoter for artistic development, is that we always find ourselves wanting to do more with our work. This has often resulted in us working like crazy for a couple of days before deadline. Over time we have gradually learned to balance this, but the feeling of constant improvement is always present, as I think it should be.

3DA: *What's the future looking like for Meindbender and what can we expect to see from you over the coming years?*
MB: From day one, we knew what our endgame was, and that is a full feature film. Every step we have taken since has been in that direction, so hopefully in a few years (two, according to schedule) we will bring our entire network together to create something really cool. Either way, and to say the least, the ride has been worth it so far.



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J

G Amoeba from the 'Evolution' episode, also created for Cartoon Network

H High-flying Duplicator, one of Meindbender's most important projects for Cartoon Network

I Part of the Meindbender crew working hard in the company studio

J A tall Duplicator gets rejected by the judges in the 'Audition' episode of the series

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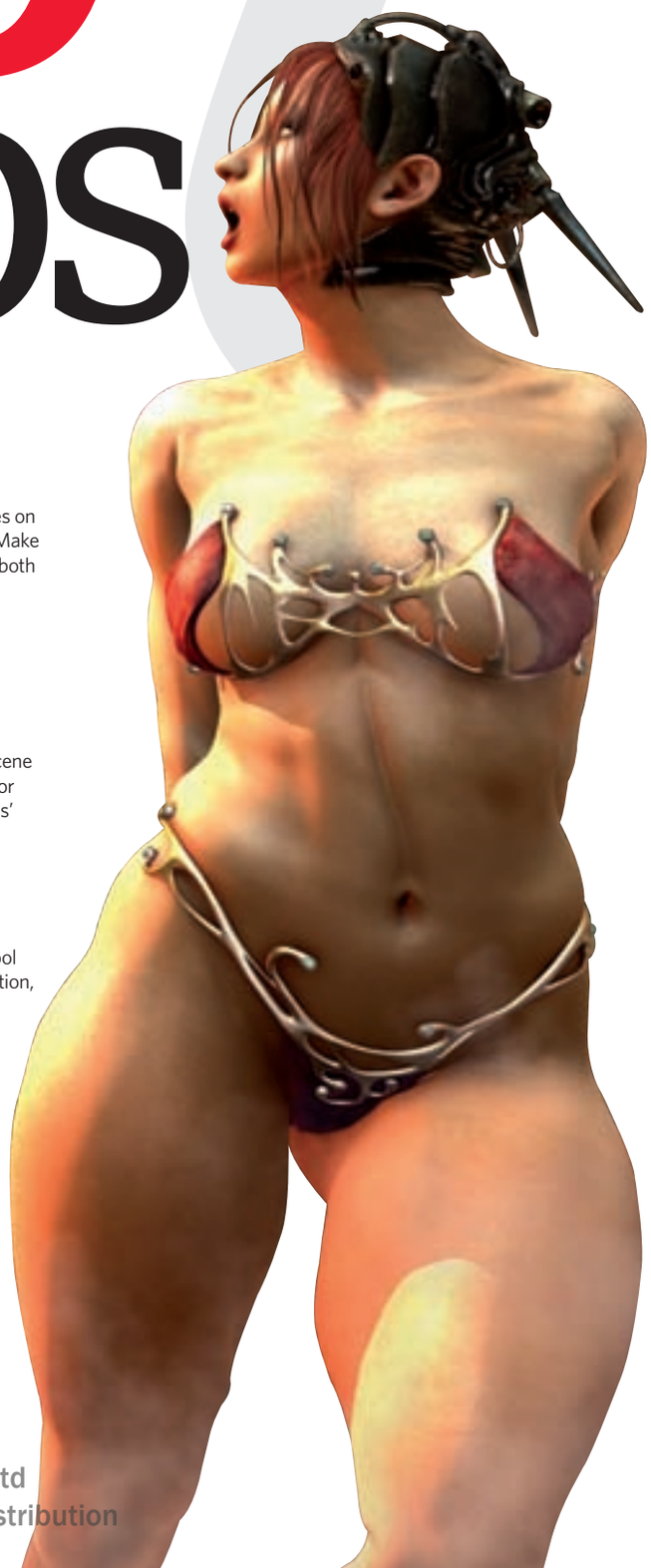
Welcome to a world of useful and time-saving tips to keep for a rainy day. Our 100 top tips cover Maya, 3ds Max, CINEMA 4D, Poser and Vue

100 Hot tips



Maya tips

01 Open new files in older versions of Maya

It's possible to open scene files in earlier versions of Maya than the version they were saved in. You just have to make sure you save the file as an MA (ascii) file, not as an MB (binary) file. Open the MA file in a text editor, change all instances of the version name to the version you wish to open in, and then save.

02 Viewport background colours

You're probably aware that you can cycle through a few background colours for the viewport using the 'Option B' hotkey; however, you can also select a custom colour by using the Colors Editor found in the Window>Settings/Preferences>Color Settings menu. Open 3D Views in the General tab to access the colour chooser.

03 Using the Attribute Spread Sheet

If you need to make sweeping changes to large numbers of objects (like turn off Primary Visibility so they won't render but will still show up in reflections), select the objects and open the Attribute Spread Sheet, under General Editors. Just click on the head of the desired attribute's column and enter the value. The value is changed for all the objects.

04 Bonus tools

Go to the Autodesk website and download the Bonus tools for the version of Maya that you're using. There are a bunch of great but undocumented tools that can really speed up your workflow.

05 Additional image planes

When modelling, if you need both a front and a back image plane to use as a template (like on a car), in your viewport go to Panels>Orthographic>New>Front. This creates a new 'Front' ortho camera, which we'll rename 'Back' and rotate 180 degrees on the Y axis, then move to the back of the object. Make sure that the image plane's Display attribute for both the Front and Back cameras is set to Looking Through Camera to ensure that each only sees its own image plane.

06 Camera tools

In the Camera viewport, under the View>Camera Tools menu, you'll find a number of tools that allow you to move around in your scene in ways other than just Tumble, Track or Dolly. For example, the Zoom tool changes the camera lens' focal length, instead of moving the camera.

07 Go for a Tumble

Did you know it's possible to tumble orthographic views? In the viewport, under the View>Camera Tools menu, select the Tumble tool option box. Now, in the Orthographic Views section, uncheck the Lock option.

08 Swap selected component types

Using the Ctrl key with either the F9 (vertices), F10 (edges), F11 (faces) or F12 (UVs) keys will allow you to switch to a different type of selected component, selecting all of the desired component types that are connected to the currently highlighted option.

09 Using Quick Select Sets

If you have a group of selected components that was really difficult or time-consuming to produce and you may need to use it again, make a Select Set. With the components selected, go to Create>Sets>Quick Select Set... You can load the group again via Edit>Quick Select Sets.

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» Maya
When you are building lighting rigs, set up a simple poly plane as a broad light source and apply a surface shader

10 Moving grouped components' pivot point

You know that you can use the Insert or Home key to move an object's pivot point. You can also use this key to move the pivot point (which is centred by default) of a group of selected components.

11 Pick walking

Whether working with vertices or edges on a polymesh or CVs on a curve, use the Up and Down arrows to 'pick walk' your selection from one component (or series of contiguous components) to the next.

12 Extracting shells

Ever buy a model off the internet, only to find that all of the meshes have been combined into a single mesh? If the Separate command doesn't break the shells out into separate meshes, you can use the individual materials in Hypershade to select shells of the same material (Select Objects With Material) and use the Extract command to break them out.

13 Uniform scaling on two axes

When using the Scale tool, you can uniformly scale on two axes only by holding down the Ctrl key while scaling along the axis that you DON'T want affected. For example, move the manipulator for the Y axis to uniformly scale only the X and Z axes.

14 Sphere without poles

If you need a spherical object without poles (where all the vertical edges join at the top and bottom), create a square cube and smooth it. Set the number of Divisions to 3 or more.

> "If you need a spherical object without poles (where all the vertical edges join at the top and bottom), create a square cube and smooth it"

15 Getting more out of the Bevel tool

Use the Bevel tool to curve large, flat surfaces consisting of a single polygon. Divide the poly in half, move the edge out approximately twice as far as you want the curve to go, then bevel that edge using a large number of Segments and an Offset large enough to cover the whole surface.

16 Mirroring objects cleanly

If you mirror an object by scaling -1 across an axis, freezing transformations will set the Opposite attribute in Render Stats. To fix this, uncheck Double Sided to expose the Opposite attribute, uncheck it and then re-check Double Sided. Finish by reversing the normals, as they will have been affected in the process.

17 Curves with corners

If you're creating a curve with the Curve degree set to 3 Cubic, but you need a sharp corner, create three CVs that are almost touching. The centre CV is the corner and the other two define the angle.

18 HDR lighting rigs

When you are building lighting rigs, set up a simple poly plane as a broad light source and apply a surface shader. Overdriving the white value using either the outValue or a ramp (with a value of 2 to 12 instead of 1) will work the same as an HDR image when using Final Gather.

19 Saving Final Gather maps

When using mental ray's Final Gather, once your FG settings are tweaked to perfection, create a Final Gather map by setting Rebuild to On in the Render settings (Final Gather tab) and creating a name in the Final Gather File slot. After completing a render, set Rebuild to Freeze. Now you can continue to tweak lights and materials and do renders of the changes without having to recalculate the Final Gather map for each render. However, if you move anything (like the camera or an object), you'll need to rebuild the map.

20 Custom Alpha masks

If you need an Alpha mask of an object which represents how the object is occluded by other objects, start with two surface shaders: one black and one white. Select all the objects in the scene and apply the black surface shader. Then select the object you want to mask out and apply the white surface shader. Render with the software renderer, with the camera's environment set to black, and use this render as an Alpha channel in your composite.

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3ds Max tips

21 Work in scale

Working in scale has unbelievable benefits, from quicker imports and placements to easy adjustments of size. While it takes a few more minutes to set up at first, this can make a massive difference to projects large or small. A number of 3ds Max functions rely on it.

22 Softer lighting

For softer lighting, use a small Hotspot value and a large Falloff. Use values of about Hotspot 20/Falloff 170 for most of your lights. Remember to also set the Inverse Square value accordingly.

23 Rendering – using BSP2

When scenes reach into millions of polygons, always change the Raytrace Acceleration from BSP to BSP2. We have suffered several bad crashes with scenes being too large for BSP to handle.

24 Splines for walls

When drawing splines for walls, remember that you need to change the angle to 45 degrees. This will sit them flat on the floor rather than adding them with a diamond-angled preset.

25 Materials – Highlights + FG Only

When creating a glossy material, checking this box can avoid quite a bit of render time. This option works very well for 'soft' materials or materials that use a very low glossiness. We do not recommend using it for all materials, but some can benefit greatly.

26 Use the manual often

Refer to the manual on a constant basis, even if you have been working with 3ds Max for years. It seems many are afraid to use it to their advantage. Checking with the manual/Help section can often alleviate the stress of something 'not working right'.

27 Outdoor rendering – Global Illumination

In most outdoor scenes, the use of Global Illumination is not necessary. Deciding not to use it can save shedloads of time during rendering. Of course, this depends on where light is coming from within the image, among other things.

28 Use Proxy objects

For heavily populated scenes with people, trees, cars and other objects, you can use mrProxy objects to ease the computer's workload while working within a scene. This can, however, complicate network rendering later.

29 Instancing makes life easier

Use Instance instead of Copy to make your life easier; editing one object is always easier than editing 20. Just keep track of what you have instanced. Instanced objects also use less RAM.

30 Be careful with Turbosmooth

Remember that adding Turbosmooth to an object increases the density of the mesh drastically. Keeping the iterations low until render time will help increase your productivity.

31 Stay away from Booleans

Boolean operations create a messy mesh. When possible, try to avoid using them. Instead, cut your mesh and extrude where necessary. Of course, there are times when you need to quickly cut holes and be done – just be careful, as they can have a weird outcome.

32 Basic objects = Basic UVW

When creating mapping coordinates, use basic mapping methods for most objects in architectural scenes. Don't waste time trying to unwrap the majority of your models unless it is a necessity for a game or if there is no other way to get the desired look.

33 Use Camera Correction

If using a small lens to 'fit' the desired view, remember that Camera Correction can solve the off-angling of walls and other objects. This will alleviate the problem of fitting tight spaces or the client coming back and saying, "This wall isn't straight."

34 Multiple scenes

For heavy and extremely detailed shots, use multiple MAX files. Separating them by location or specific models/objects can save oodles of time in the long run. Then they can be composited in a photo-editing application. Just make sure that you use the same lighting rig.

35 Studying materials

When studying how to create a certain material type, you may find it very useful to download a similar material from **www.mrmaterials.com** or another website. This way, you can analyse all of the settings and put what you learn to good use.

36 Use the Spacing tool

When having to place a ton of objects in a row or around the contour of an object/spline, use the Spacing tool. It sure beats having to place each object manually one by one. You can find it under Align in the Tools menu.

37 Testing animations

Use the Make Preview tool to check motion and timing of an animation instead of render processing the entire set. This will create a viewport animation showing the timing and movement of the animation – without the long render time.

38 Angle Snap toggle

A useful practice is to switch back and forth between Snap Free and the Angle Snap. This will increase your productivity and speed, making it easier to rotate items with precision.

39 Name the objects in your scene

This is often a tough one to follow when you are in the groove or creating very quickly, but when possible, name the objects as you make them. It may take more time in the beginning, but will save you time in the end!

40 Visual intent vs Precise intent

While working on a render, remember that it is a visual. Sometimes, while being precise is right, it might not 'look' right. Use your judgement to make the image precise during your process, but visually pleasing during your render.

» 3ds Max
From novice to professional, there is something to be gained – even if only a reminder to do something more often

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» CINEMA 4D
An object consisting of multiple polygons with a Luminance material is used instead of numerous area lights

CINEMA 4D tips

> If you're not satisfied with the default colour chooser palette, you can change it in a very flexible manner and with lots of options

41 Hide the local coordinate axis

Pressing Alt+D quickly hides or unhides the local (object) coordinate axis. The feature comes in handy especially when using the Point tool, while editing splines by adjusting tangents etc.

42 Camera matching

Your CINEMA 4D camera focal lengths will match the viewing angles according to the standard (35mm Leica) values only if you change the Aperture Width value from the default 36 (the Leica frame width) to 43.267 (the frame diagonal).

43 Setting default attributes

Save As Preset will save the current settings of an object, shader, post effect, material or tag. All new objects (shaders, post effects, etc) of the same kind will use the same settings. It won't work with the camera view angle, though, so can't be used in conjunction with the previous tip.

44 Quick keyframing

Every parameter that has a small circle in front of it can be quickly keyframed by Ctrl+click. The circle turns solid red. Shift+click deletes the keyframe (the circle turns empty red), while Ctrl+Shift+click will delete the entire track.

45 Luminance material vs Area light

(Advanced Render Module only) If using GI, an Area light can be – in most cases – replaced by a geometry with a Luminance material applied, for much faster rendering. A Luminance material is a material that has the Luminance channel active.

46 Selection rays

Double-right-click or Shift+right-click on an object in a viewport and up will pop a selectable list of all overlapping objects at that point. They will also be in the correct layer order. This is particularly useful when creating crowded scenes.

47 Quick rename

Double-clicking an object in the Object Manager allows you to rename it on the fly. After you rename it, you can then simply use the Up or Down arrow keys to quickly rename the previous or the next one.

48 HUD selection assistant

If an object is dragged into one of the editor views from the Object Manager, a HUD element is created. Clicking on it will select the respective object or command, which to all intents makes it a quick selection assistant.

49 Using Photoshop shapes and paths

Create a path or shape within Photoshop and use the File>Export>Paths to Illustrator. Next, merge the AI file in CINEMA 4D. The new spline can be used as any other spline in CINEMA 4D (such as NURBS Creation etc).

50 Quick Select switch

If you press the Spacebar, it changes from whatever tool you currently have active to the Live Selection pointer for you to select things. Great time-saver as it avoids having to re-select the current tool every time you change selection.

51 Faster Global Illumination

(Advanced render only) When using GI to render exteriors, in most cases, selecting the Sky Sampler GI Mode in the GI settings will suffice, instead of IR or QMC. This significantly shortens the rendering time.

52 Correct sunlight shadows

To correctly simulate sun shadows, use an Infinite light together with an Area shadow and, in the Details tab, set the Infinite Angle value to 6 degrees (the approximate view angle of the sun disc).

53 The Stage object

Instead of rendering separate animations, animate the Stage object to automatically switch between various cameras, Skies, Foreground objects, Background objects and Environment objects in a single animation.

54 Last Tools Used

A list of the last eight tools used in your project is accessed with this command. Each tool can be selected and reused. It can also be accessed next to the Rotate icon in the top toolbar.

55 Changing colour chooser

If you're not satisfied with the default colour chooser palette, you can change it in a very flexible manner and with lots of options in the Preferences menu (Preferences>Units>Color Chooser).

56 Shadow casting only

A CINEMA 4D light can be easily forced to cast shadows, without actually adding illumination to the scene, by checking the Shadow Caster option in the Light settings within the Details tab.

57 Volumetric lights vs Fog

Various foggy effects in CINEMA 4D do not sit well with transparency and Alpha info in materials. Instead of using them, create 'fog' by using carefully placed and manipulated volumetric lights with No Illumination checked.

58 The Selection object

When using the autokeying feature in CINEMA 4D, it is possible to restrict the effect to certain objects only. Add a Selection object to the scene, select it in the Object Manager, then drag the desired objects into its list box.

59 Sound rendering

Besides images, CINEMA 4D can also render sound! The Loudspeaker objects 'generate' sound from audio files, while the Microphone object picks the final sound scene up and renders it to another audio file (with Mono, Stereo and Surround presets).

60 The Proximal shader

The Proximal shader, if used instead of a texture in a Material channel, makes the Texture channel react according to its proximity to another predefined object on the scene.

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Poser tips

» *Poser*
Layers and lockoffs; ten different layered renders, with a locked-off camera and 20 characters

61 Start at the beginning

Sick of seeing the guy in the red jumper whenever you launch Poser? Set up an empty scene, light it how you want, set this as the Preferred State in the Preferences menu and check Launch to Preferred State. Voila!

62 DAZ Loader

Installing DAZ 3D content with Poser Pro or 2010? Set the Target Application as DAZ Studio; now, the loader won't report an error and hang when it can't find 'poser.exe'.

63 Volumetric lights

To get visible volumetric lights, go to the Material Room, click on the Object list and check Atmosphere. In the Properties box for your spot lights, set the Atmosphere Strength to more than zero; hey presto, cones of light.

64 What you looking at?

Use a primitive prop for the eyes of your characters to point at. Make the prop invisible and, as if by magic, all your characters will be looking in the same direction; move the prop and their eyes will move, too.

65 Two are better than one

Got Poser 8 or 2010 and a spare monitor? It's a breeze to set up your second monitor to display the Poser Library window. You'll wonder how you ever managed without it.

66 Now you see me...

Got a transparent prop or figure? Having trouble seeing it in the preview? Go to Display/Element Style for the object in question, and set it to Cartoon w/Line mode. It becomes instantly visible, but doesn't affect how it renders.

67 Layers and lockoffs

Need complexity? Lock your main camera and save the empty scene as a master with the lights. Create separate layers of elements from the back to the front of the scene, saving each as you go, and composite them over each other.

68 Firefly quality

We all love high quality renders, but you don't need to use the highest quality settings; it just increases the load on your system resources for very little gain. Throttle it back a bit and watch your renders fly!

69 Those blotchy shadows

A common fault in Poser is those awful blotchy shadows; in the Properties box for your light, increase the Shadow Min Bias for smoother edges with no artefacts.

70 Export figures as OBJ

Try exporting figures, or even whole scenes, as OBJ models. This can lead to a considerable saving on memory, as morph targets and other Poser-specific parameters etc, which aren't necessarily needed, aren't saved.

71 Thanks for the memory

Memory dots – we've all seen them, but do we use them? They are a quick and efficient way of storing camera angles, poses and your workspace settings. When they're full, hold down Alt+click a dot to erase it.

72 Paint it black

You know those annoying highlights and glare you get on what you thought was an invisible object, which really give the game away? Try setting the highlight colour for the clothing item to black to make them disappear.

73 Dude, where's my textures?

You want to locate a texture map, but you're looking at a runtime that contains 5,000 items. In the Material Room, the drop-down menu in the Texture Manager gives you the full path to the texture map in question.

74 External runtimes

Try setting up more than one external runtime, categorised to suit the way that you work. We know people with dozens of them, clearly labelled. This saves scrolling through hundreds of items in a single runtime to find what you want.

75 Backfacing polys

Not a medical complaint. To save on resources, set Remove Backfacing Polys in the Render settings; Firefly will ignore any polys you can't see, which dramatically speeds up your renders. A bit alarming if you have mirrors in your scene, though.

76 Texture size

Poser has a unique way of handling textures, which results in massive memory overheads with large textures. If you don't need a big final image, consider rescaling the texture map JPEGs smaller. You'll save staggering amounts of memory.

77 Bucket size in Render settings

For less memory usage but a slower overall render, set the Bucket size to something small, say 8 or 16. Set it to 32 or 64 for a faster overall render, but remember this will use more memory.

78 Ballooning

Sometimes, when you have Smooth Polys checked in your Render Settings menu, your props will look like inflated meringues, and seams can even separate completely. Uncheck it to make the props shrink back down again and to restore order.

79 Create an Alpha mask

Delete all your lights, set the background to white and then render away; you can also use a lower quality image than you would for your beauty render. You're left with an instant Alpha mask.

80 Cloth Room props

When you've struggled with the Cloth Room to get your draped-cloth prop, export as an OBJ model. You can then re-import it without worrying about the Cloth Room, and can easily use it in other scenes.

> “We all love high quality renders, but you don't need to use the highest quality settings; it just increases the load on your system”

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Vue tips

81 Material summary
To display all the materials contained within your scene, press F6. This shortcut will enable you to edit each material and adjust the scale. By clicking on each material, you will see all the objects in the scene highlighted which use that particular material.

82 View display properties
If objects in your scene are not responding quickly when adjusting their position, try changing the View display to Wireframe. Do the same for each window view, and you should see an improvement.

83 Preview speed
The time a render takes is determined by a number of factors. The first one to look out for is the time it takes to render in Preview mode. How fast this is usually reveals the speed it will render in a higher quality resolution.

84 Render quality vs speed
Reducing the Quality Boost in the Atmosphere Editor will speed up your render time, and in most cases, there will not be any noticeable change in render quality.

85 Render user settings
Try and avoid using the default Render settings. Try User settings and turn off unwanted features such as Motion Blurring and Depth of Field, unless you really need them. The difference between Final and Broadcast is also negligible.

86 Trees without leaves
To remove leaves on trees, click on the Material Editor for the leaves. Then select Transparency and uncheck Variable Transparency. This will leave you with a leafless tree, ideal for those winter scenes.

87 Poser Import settings
In general, when importing a Poser model, select Import Single Frame, unless you are doing an animation. Don't use Allow Reposing in Vue, unless you have a lot of resources available.

88 DPI and resolution
Increasing DPI in Vue will only increase the render time significantly. Leave it at the default setting and change it in Photoshop, or another photo-editing program. The more important setting in Vue is Resolution.

89 Create a cave
To quickly create a cave, select any terrain and simply rotate it 180 degrees. You can then increase the height, which will create stalactites underneath. Add a water plane and place the camera under the terrain.

90 Clouds for smoke
Try using Cloud materials for other effects, such as smoke. A cylinder can be selected and then converted to a MetaCloud material, to create a funnel of smoke.

91 Showing models
When loading a model, you can click on the Hide Optional Cornucopia3D Items. This will show the models that have been bought and are available to use, or ones that are still available to buy.

92 Tree branches
To smooth out tree branches and avoid them looking larger at the base, try increasing the resolution of the tree in Botanica. Click on X2 and increase to between 150,000 and 200,000 polygons.

93 Combining trees
Try combining different tree models for interesting results. Using Botanica, the branches or trunk of one tree can be removed and the remaining tree can be added to another.

94 Distant objects
When placing objects in the distance, avoid using high-poly models. They will take up valuable resources without their detail being seen by the viewer. There are plenty of free and affordable low-poly models to fill up any background.

95 Rule of Thirds
When composing a scene, try using the Rule of Thirds. Divide your image or scene into thirds and try to avoid placing key objects in the centre. This will give you a stronger and more interesting final composition.

96 Less ambient light
Try decreasing the ambient light in a scene and using only fill lights. This will result in greater control of your image's final output and an image with greater depth and richness.

97 Different Aspect ratios
If your scene is lacking something and you're not sure what it is, a simple change of Aspect ratio can make all the difference. For instance, making a square-shaped ratio more panoramic can have a dramatic effect, especially with landscapes.

98 Depth and Alpha channels
Always remember to save the Depth and Alpha channels with your final render. You may think you will never need them, but it is reassuring to know that if you do want to add some post-processed effects at a later stage, then you have the tools to easily do it.

99 Quick keyboard shortcuts
To quickly access some of Vue's commonly used features (Windows), use F5 to load an atmosphere, F4 to edit an atmosphere, F7 to toggle different viewing angles, F9 to render and ESC to stop rendering.

100 Free models
If you're looking for some decent quality free models, then you should check out **www.archive3d.net** or **www.amazing3d.com**. For lifelike buildings from around the world that are low- to mid-poly, a website well worth visiting is **sketchup.google.com/3dwarehouse**.

> "The time a render takes is determined by a number of factors. The first one to look out for is the time it takes to render in Preview mode"

» *Vue*
To display all the object materials in a scene, press F6

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A The main sequences for Luma in *The Book of Eli* revolved around the 'underpass' sequence early in the film where Denzel takes on a horde of cannibals

B

C

D

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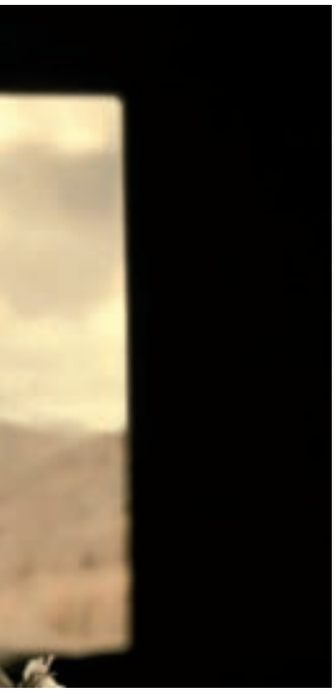

Duncan Evans talks to the team at Luma Pictures about working on big-budget Hollywood movies

Shining a light on visual effects

> For the flesh-turning-to-stone effect, we wanted something that had a drying-out effect so we came up with a particle system of planes and diamonds
>
> **Richard Sutherland,** CG supervisor

Company Luma Pictures
Founded 2002
Company website www.luma-pictures.com
Country USA
Expertise Creatures, environments and effects
Software used Maya, Nuke, mental ray, Real Flow, Fume FX, Houdini, ZBrush
Client list Marvel, Fox, Walden Media, Paramount Pictures, Universal Pictures, Columbia Pictures, Walt Disney Pictures, Warner Brothers, Lakeshore Entertainment

Founded in 2002 with just 15 people, Luma Pictures, based in Venice, California, has grown to form a tightknit team of 60 talented 3D members. Having contributed to over 50 films such as *Harry Potter and the Half-Blood Prince, The Book of Eli* and *Percy Jackson... The Lightning Thief,* Luma tackles everything from full digital environments to characters to fluid dynamics. 3D Artist gave Luma a call to chat about the state of the industry and the projects the studio has recently worked on.

3D Artist: *Well, we're all just crawling out of recession, but last year appeared to be a bonanza for special effects. Have you found the demand for effects showing any sign of slowing down or is it increasing because relative costs are falling?*
Payam Shohadai: The combination of the US recession, the aftermath of the writers' strike in 2008 (and near actors' strike) and studios chasing film incentives in foreign territories like Canada and the UK meant many VFX companies experienced layoffs and several significant companies even shuttered. By contrast, while 2009 wasn't our biggest year, we didn't lay off a single person and managed to stay profitable. Now that the economy is on the upswing, writers are writing and actors are acting, which means films are being greenlit and we're keeping very busy with some of the best work we've ever had.

3DA: *Do you find it necessary to go out and pitch for a lot of work or are heads of VFX beating a path to your door with work?*
Payam Shohadai: Between maintaining existing relationships, actively pursuing new ones and word of mouth, we're constantly bidding projects in various phases from pre-greenlight through to the eleventh hour.

3DA: *What kind of hardware and software setup do you have at your main office?*
Steven Swanson: Our IT infrastructure is comprised primarily of Mac and Linux with a few PCs for specific software. Rather than reinvent the wheel, we have extended off-the-shelf industry tools like Maya, Nuke, mental ray and Real Flow, and wrapped them into a robust Python-based pipeline.

3DA: *Do you ever outsource render work to a render farm, for example?*
Payam Shohadai: Our proprietary software and studio mandated security don't make that option feasible, but more importantly, for us, it makes more financial sense to invest in additional horsepower that we can permanently benefit from. We already have a large render farm in-house, so that issue rarely comes up.

Ⓑ Uma and her head of snakes was the main project for Luma on *Percy Jackson... The Lightning Thief*. The project involved over 3,000 snake shots

Ⓒ *Underworld: Rise of the Lycans*. The team faced the challenge of not only coming up with realistic hair and fur, but also modelling the animated werewolves

Ⓓ The *City of Ember* project was one of the few times the team had to do previs work, mainly to see how much space they had to create the rampaging mole

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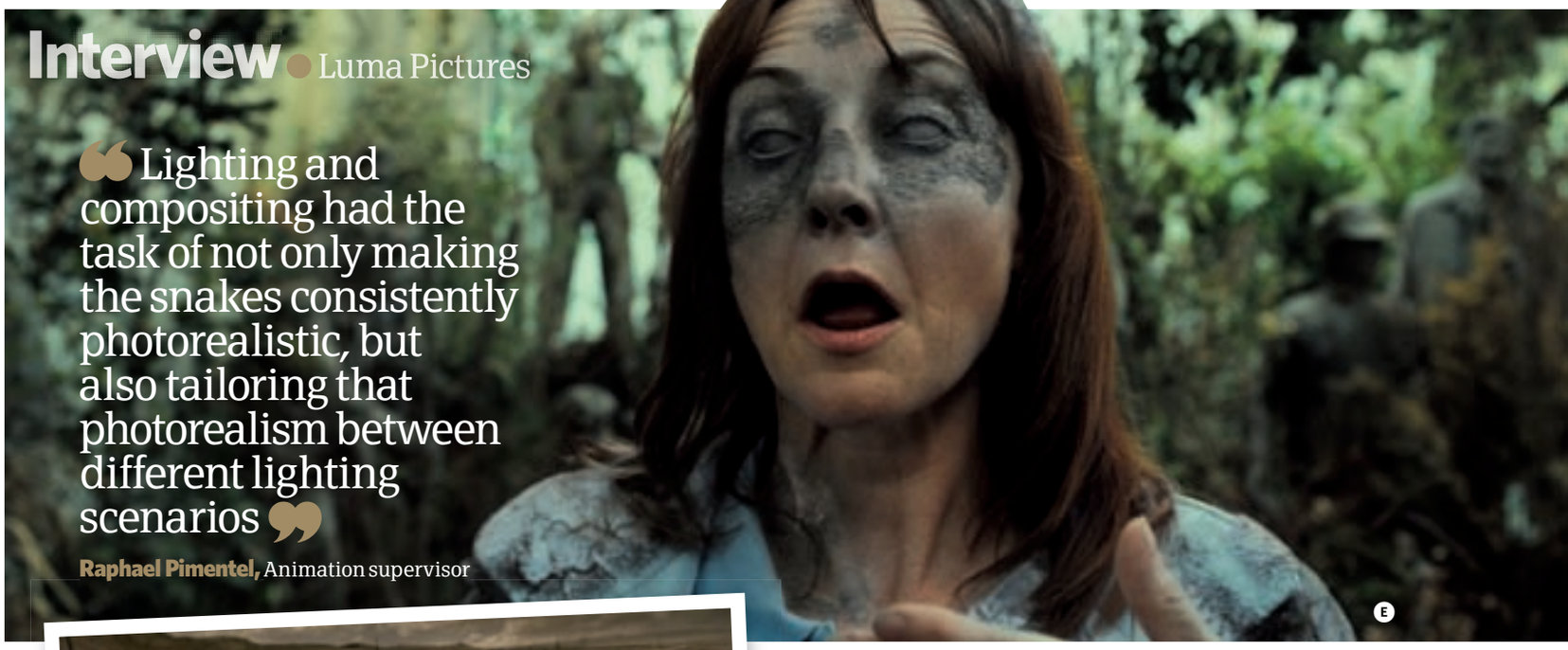

> Lighting and compositing had the task of not only making the snakes consistently photorealistic, but also tailoring that photorealism between different lighting scenarios

Raphael Pimentel, Animation supervisor

F

G

3DA: *How much previsualisation work does Luma Pictures get involved in before shooting starts on a project?*
Steven Swanson: We mostly leave that to companies dedicated to previsualisation, though we occasionally tack that on as part of our package.

3DA: *Okay, anything recently?*
Steven Swanson: On *City of Ember*, we sent a supervisor and animation lead on set to help design shots on the fly. More commonly, studios hire freelance artists for in-house previs during preproduction so they're better prepared in advance.

3DA: *Let's talk about some of your big movie projects, starting with* Underworld: Rise of the Lycans *in 2009. What work did you do and how hard was it to create realistic wolf-like creatures in terms of hair and animation?*
Richard Sutherland: In a span of four months, from asset creation to shot execution, we handled 30 of the most technically challenging shots, which included transformations and an army of dozens of CG werewolves. Some of the transformations even occurred while the characters were running or climbing up stairs.
Raphael Pimentel: The proportion differences between human and werewolf certainly made the animation very tricky. For shots with dozens of werewolves, we mixed hero animated and rendered wolves with simulations out of Massive.
Richard Sutherland: Matching the look of the two fur systems (Shave and a Haircut and Maya Fur) was a major challenge for our lighters and compositors.

3DA: *The work on* Harry Potter and the Half-Blood Prince *was quite subtle. What shots did you get for this?*
Steven Swanson: We had two very large projects in production at that time which limited the volume of work we could take on. Our batch of shots included a CG metal owl, CG necklace, CG books and various effects such as snow and magic bubbles.

3DA: *For* The Book of Eli, *what was the main sequence you were involved in?*
Steven Swanson: We completed 60 shots in the underpass fight sequence in which we replaced all skies with time-lapse clouds provided by production and composited them with a stylised look. We also created several matte paintings of a barren landscape to eliminate any sign of plant life.

3DA: *Did you consciously give the environment a* Fallout 3 *look, or were you simply matching the existing set design?*
Steven Swanson: There is an existing visual lexicon of what post-apocalyptic landscapes look like, but I don't know whether *Fallout* was an influence. Our sequence was self-contained from the rest of the film, so we weren't involved in defining the look outside of our environment.

3DA: *On* Percy Jackson, *you had the fun task of giving the lovely Uma Thurman snake hair. Tell us about this complex effect.*
Vincent Cirelli: This was a challenging but very fun sequence for us. First, we tightly matchmoved the mass of snakes onto Uma's head, ran them through a first pass of dynamics to get a general sense of weight and motion, and then our animation team meticulously hand keyed a collective 3,000 snakes across 45 shots.
Raphael Pimentel: Uma's performance provided some wonderful queues for the animators to work to. Lighting and compositing had the task of not only making the snakes consistently photorealistic, but also tailoring that photorealism between different lighting scenarios.

3DA: *Were there any specific technical problems and how did you solve them?*
Richard Sutherland: There were a variety of technical issues inherent in the 'Medusa' sequence across all departments, compounded by the sheer number of snakes.

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Key people

Payam Shohadai
Executive VFX supervisor

Steven Swanson
Supervisor visual effects producer

Vincent Cirelli
Visual effects supervisor

Steve Griffith
Visual effects producer

Justin Johnson
Digital effects supervisor

Raphael Pimentel
Animation supervisor

We did a fair amount of R&D up front to strike a balance between elegant procedural techniques and brute force methods. We extended our geometry caching and texturing/shading pipeline to handle the large volume of snakes and to provide variation in colouring and textures. Ultimately, it was a great opportunity to generally enhance the capabilities of our pipeline for future work.

3DA: *Were you aware of Medusa appearing in* Clash of the Titans*, and did that affect how you portrayed her?*
Vincent Cirelli: The trailer for *Clash* came out while we were hard at work on our shots and, naturally, we framed through the Medusa shots. It's hard to judge solely on a few quick trailer shots, but it appears they have a different look altogether.

3DA: *How did you go about creating the flesh-to-stone gaze of Medusa?*
Richard Sutherland: We did a few treatments of the eyes, making them look gory, but then reverted to a subtler approach which was essentially a colour correction with a bit of blur. For the flesh-turning-to-stone effect we wanted something that had a drying-out effect, so we came up with a particle system of planes and diamonds that moved and settled in place, flaking and cracking on the moving edge. It was a lot of effort for that single shot.

3DA: *Did you get art direction on this shot on how the director wanted it to look or were you given free rein?*
Vincent Cirelli: We were given free rein initially and refined the look with production side VFX supervisor, Kevin Mac, to strike a balance of photoreal yet squeamish.

3DA: *How many shots in total did you do on* Percy Jackson*?*
Steve Griffith: We completed 85 shots altogether on *Percy Jackson*, the majority of which were of Medusa's snakes.

3DA: *Did you have a dedicated number of people working on* Percy*?*
Steve Griffith: We treat all concurrent shows as a single endeavour, so everyone works on each show. Roughly 65 people contributed to *Percy* in varying degrees.

3DA: *You also got the job of bringing the Lord of the Sea, Poseidon, to the screen. What kind of different problems did that throw up?*
Richard Sutherland: We have a fair amount of experience creating CG water using Real Flow combined with Maya particles. This particular sequence posed some challenges in that the transformation shots were not physically accurate. Most simulation tools are designed around producing physical simulations; in this case, we needed to keep the physical look, but with a supernatural behaviour. Fortunately, Real Flow has a well-developed scripting environment that allowed us to art direct the simulations and to produce behaviours not necessarily based in physical reality.

3DA: *Did you use any special software solutions here?*
Richard Sutherland: I believe one of the strengths of Luma is our ability to customise and wrap off-the-shelf software into a cohesive pipeline. We have a very talented staff of pipeline technical directors that help us solve difficult technical and artistic challenges by connecting or modifying our off-the-shelf packages. Over the years, we have developed a pretty comprehensive set of scripts and extensions that are perpetually being refined.

3DA: *In one scene, Poseidon emerges from the sea dripping with water. As this was shot in the dry against a green screen, how did you pull this off?*
Justin Johnson: We combined some clever comp treatments with multi-rendered passes and water simulations. A tight camera/animation matchmove allowed us to render specular and reflection passes for the skin and armour. We generated a series of flowing/dripping water simulations and applied complex colour corrections to achieve Poseidon's wet look.

3DA: *What other effects shots did you complete on this?*
Steve Griffith: We worked on the opening sequence at the top of the Empire State Building, which involved replacing green screen for New York cityscape, as well as the exploding door that segued into the opening credits. In fact, we actually worked on the very first and very last shot of the film.

3DA: *So, what's coming up next for you guys at Luma Pictures?*
Steven Swanson: We're actively working on *Thor*, *The Green Hornet*, *Battle: Los Angeles* and the Coen Brothers' latest film, *True Grit*.

> "A tight camera/animation matchmove allowed us to render specular and reflection passes for the skin and armour"
>
> **Justin Johnson,** Digital effects supervisor

E *Percy Jackson...The Lightning Thief* involved the technical challenge of turning flesh into stone in a gradual process rather than quickly in one go

F *The Book of Eli* has a specific dusty and scorched earth look. Luma matched its environments and skies to the overall look and feel of the film

G Luma was quite busy at the time, but managed to squeeze in a few effects shots for *Harry Potter and the Half-Blood Prince*

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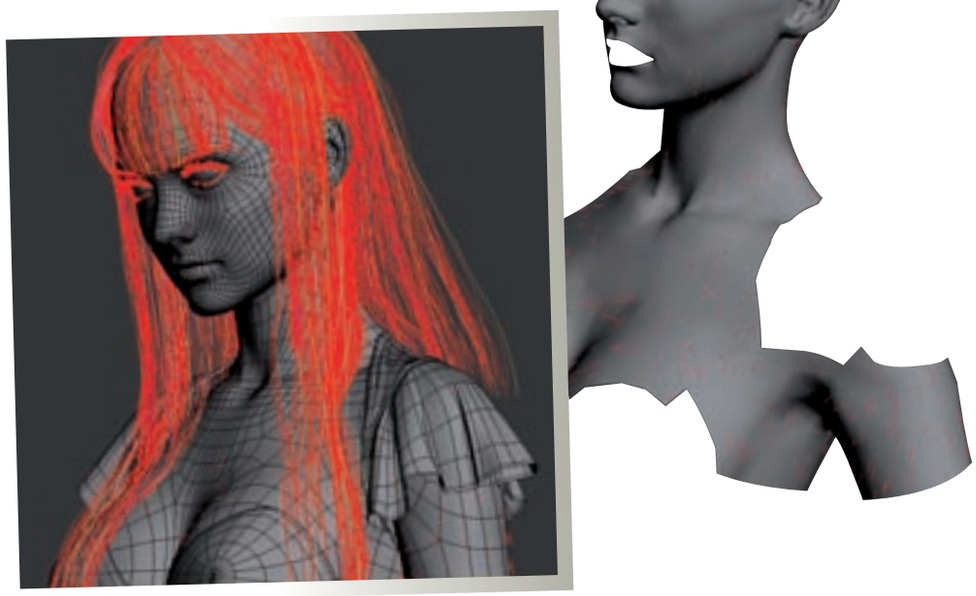
Step by step: Texture and light a beautiful girl

Girl in Church 2010

"Aiming to create a sense of tranquillity, this image features a pretty girl inside a church"

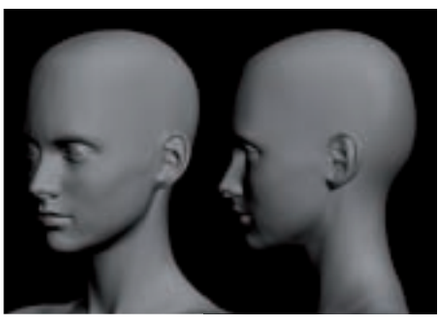
Satoshi Ueda specialises in game graphics and concept art

The main tool used to model and build this scene was 3ds Max and it was rendered in the standard mental ray. Photoshop was used for a final composite of the various render layers. The most difficult aspect of the image was the rendering time. Even though the image used the standard Hair and Fur options, it took a frighteningly long time to render the hi-res version – two whole days. In this tutorial we will discuss the volumetric lighting for the background, and the materials and textures used for the girl. The aim of the image was to produce a movie-quality scene with a sense of serenity.



Concepts

Inspiration behind the scene



01 **In terms of modelling** the figure, the idea was to create a sense of innocence. I carefully balanced the position of the eyes, nose and mouth to make her as attractive as possible. There was a tendency to go over the top and give her more anime-style features, but I didn't want the image to become unreal. So, I've enlarged the eyes as much as possible, because that's the main focal point, but not overdone them. As the overall theme is one of purity, the girl's make-up has been kept to a minimum.

02 **I did practice** render passes with mental ray and the standard Hair and Fur options in 3ds Max just to see how well they performed. The challenge was to create really long hair that fell naturally. The hair itself was made from splines so that adjusting the hairstyle was relatively easy.

03 **To make streams** of light work, a dim church setting was chosen for a background. This choice also affects the lighting because the only source of light comes from the window. The result is a stream of volumetric light positioned behind the girl, which just illuminates her face.

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Satoshi Ueda

3DArtistonline
Username: Satoshi Ueda

Personal portfolio site
www.akatuki.biz

Country Japan

Hardware used Xeon CPU E5430 2.66GHz, 4GB RAM

Expertise Satoshi specialises in game graphics and concept art, as well as writing guides

Texturing, Lighting

Software used in this piece

3ds Max | ZBrush | Photoshop | After Effects

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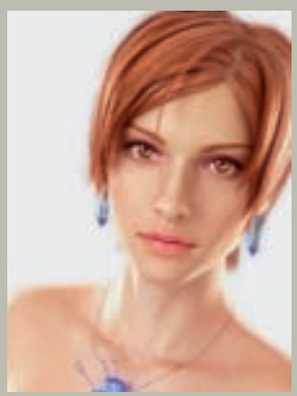
Artist Showcase

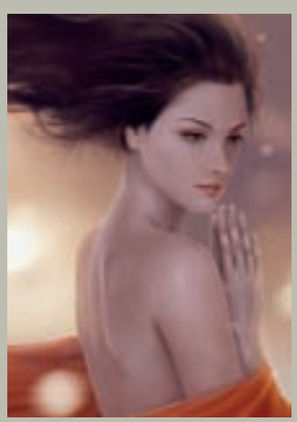
Satoshi Ueda

Satoshi is a 3D artist from Japan. He has worked on making models for the movie *Resident Evil: The Umbrella Chronicles* and *Resident Evil: The Darkside Chronicles,* for which he created the CG-illustrated packaging too. Satoshi also worked on the art direction and packaging for the XBOX 360 game, *Bullet Witch*.

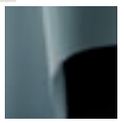


Maxbook Girl **3ds Max, V-Ray (2004)**
I made this for the cover of my book, *3ds Max Super Technique*. It is a practice model for those needing an image to use in V-Ray for the first time.

Rain Street **Photoshop, RETAS STUDIO (2009)**
This is one still frame from an independent production animation. The girl in the centre is the heroine, wandering about a shopping area in the rain. Japanese company RETAS STUDIO made the animation software that was used for the expression of movement. The background was painted using Photoshop.



Prayer **Photoshop (2006)**
Adult woman who is sending up a prayer. The painting was done using Photoshop. Power was put into the expression and a solemn atmosphere applied generally to the scene.

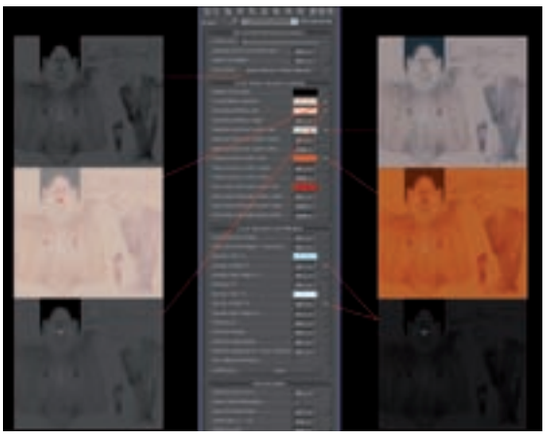


Textures and materials

Creating the skin and clothing textures

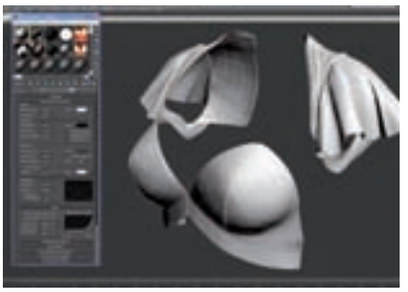
04 **A biped frame** was set to the model and posed – this made it easier to change the composition. The camera was then arranged, focusing on the girl's face. Seams were put in the parts that you can't see to make it easier when it came to the UV unwrapping. Because part of the shoulder was hidden with clothing, a seam was put there as well. The UV was then opened.

05 **Unwrap UV was** guided. The photograph of the material collection was tiled using Photoshop and the texture was then created. A white, bright point was used on the tone curve to help make everything high key. Then in Photoshop, the Bump, Overall Diffuse colour, Unscattered Diffuse colour, Epidermal Layer Scatter colour, Subdermal Layer Scatter colour and Specular textures were all established.



06 **The material of** the skin uses SSS Fast Skin Material. Six kinds of handmade textures were used. Because a lighting sphere was used to light the environment, the Only Reflect Environment tab was activated. Also, because Exposure Control is being used in the scene, the Soft Screen compositing check was removed.

07 **In the Hair rendering** options, I chose 'mr prim'. Hairs were copied and duplicated and the settings finalised. On a test render, the rendering time took far too long, so as a compromise, the total number of individual hairs was reduced. Even then, it still took two days! When the rendering was finally done, a black material was applied to the body so it would be easy to process.



08 **The wrinkles and** the drapes in the clothing were modelled inside Max. After trial and error, the Arch & Design material of mental ray material was selected, though I was tempted to use the standard material, Oren-Nayar-Blinn. It would have been easier to create a red dress because it's so easy to overexpose white fabric, but that wouldn't have fit in with the mood of the image.

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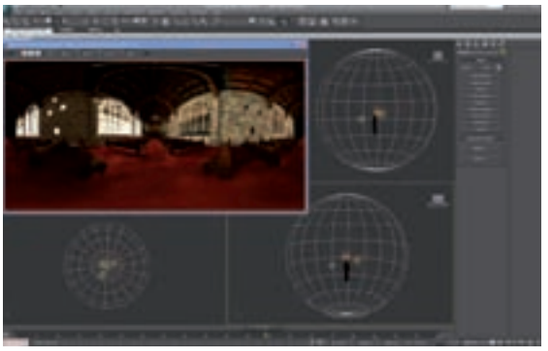
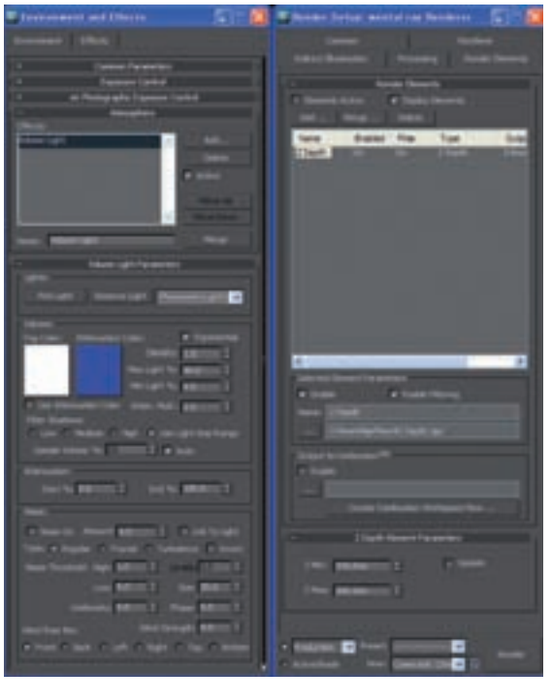
Lighting the girl

Creating the ambience of the scene



10 **The camera was** set up inside the church model, focusing on the girl, with the church window in the background. The HDRI map was made using Panorama Exporter. This map was then put on the sphere model. This map was also used for reflections when rendering with mental ray.

09 **Three lights were** added with ray-traced shadows using Photometric Light. The lighting was created to give a backlit effect. The light in the back left was made the strongest; it is an image of the backlight. The two other lights were used to brighten up the foreground of the image, as it was too dark otherwise. They provide fill-in lighting.



11 **mr Photographic exposure** control was used (in Environment and Effects). The light and shade of the image were adjusted with the image control. With backlit images, it's very easy for the foreground to become too dark. Even though a couple of front lights were used, the backlit light was permitted to blow out the highlights to produce a volumetric effect.

12 **The volume light** is set to the backlight. Volumetric light is an effective means to producing an airy feeling. To edit it back in Photoshop, the rendering was done as a Monochrome map file and details tweaked to improve the depth of field.

48 hours render time
Resolution: 4,336 x 3,000

13 **Four individual render** layers: volume light for the background, highlights on the fine facial hair, the girl and background of the image were output and composited in Photoshop. The final adjustments made to the depth of field were output with the lens filter using a ZMAP file. The background was already out of focus because it is distant from the viewer.

Modelling the figure

From the start, I wanted to base the central focus of the image around the serene girl as much as possible. Considerable attention was needed to create the model's face, as I concentrated on getting the balance of eyes, nose, mouth and even the length of the eyelashes, just right. To give your character the most realistic hair at the rendering stage, set the Sampling Quality filter in mental ray to the maximum. If you want to shorten the rendering time, consider using a third-party plug-in, though, if you're happy to wait, even the standard Hair/Fur functions can produce impressive results.

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Viktor Fretyán

3DArtistonline
Username: Radic

Personal portfolio site
radicjoe.cgsociety.org
Country Hungary

Hardware used
Intel Core 2 q9550, 8GB RAM
Intel i7-860, 8GB RAM

Expertise I mainly work on architectural visualisations

Software used in this piece

3ds Max · Photoshop · After Effects · V-Ray

Materials, Lighting

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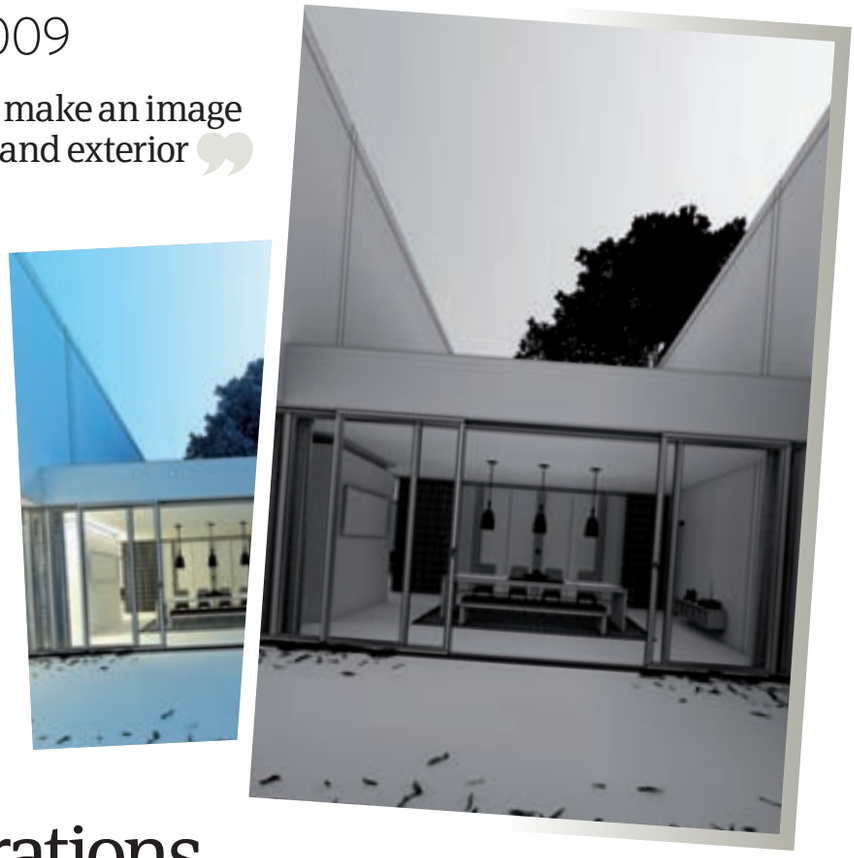
Step by step: Texturing and lighting architecture

Normafa House 2009

> It's an interesting challenge to make an image that shows off a building's interior and exterior

Viktor Fretyán has experimented with 3D art since school and specialises in architectural visualisation

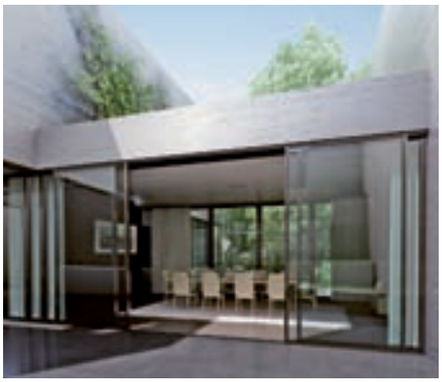


This image is part of a set of renders on a detached house in Budapest, Hungary. It is designed by Satoshi Okada and is under construction at the moment. Since this was an assignment, it means I had a deadline and had to follow certain requests and guidelines. Consequently, the end result was not satisfying enough for my taste and I decided to make my own version of the rendering. In this tutorial, I will explain how the materials for the surfaces were applied and how the lighting was set up. I think it is always an interesting challenge to make a successful image of a place that shows off both an interior and exterior at the same time. The composition, the lighting and the materials are quite dramatic in this image, which I really like. I'm looking for this kind of drama in most of my work. I love to play with light and shadow, as well as with the colour of the light.

Design inspirations

The style for the scene

01 Satoshi Okada is a Japanese architect who designed the Forest Refuge known by almost everyone thanks to Alex Roman's interpretation. I was really excited when I got the chance to work on his new design. As an architect, the topic is always important; I have to like the design too in order to make nice renders.



02 As I said before, this image is not part of the renders I delivered to the client. As often happens, clients prefer a more generic, less dramatic look regarding lighting and composition. Clients always seem to have a different taste in renders and, trying to figure out what it is, I can rarely satisfy my own expectations for the project.

03 This project was anything but subtle. I mean, since the architecture was so pure, I decided to make the greenery as spectacular as possible. Every little spot of the image has something on it. There are no clean or empty surfaces in the scene. I wanted every image to be really vivid.

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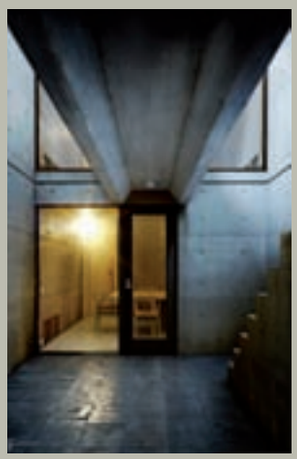
Artist Showcase

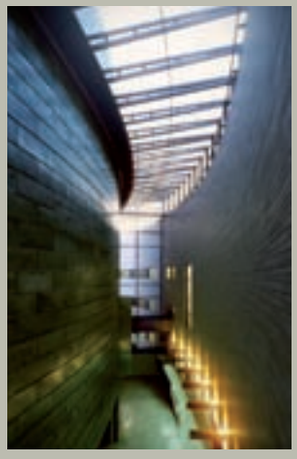
Viktor Fretyán

I am a 26-year-old architect from Budapest, Hungary. I started using 3D many, many years ago when I was in elementary school. I experimented with small animations, effects and building primitive models. Years later, while studying at university, I found it was actually a good way of making money so I started to dig deeper into arc-vis territory.



Row House **3ds Max, V-Ray, Photoshop (2009)**
This is a small, personal practice piece I made over a weekend and it included four renders of Tadao Ando's first realised project in Azuma, Japan. I love the raw concrete material and it features everywhere on these renders. I enjoyed working on this project especially because I did it in only a few days.

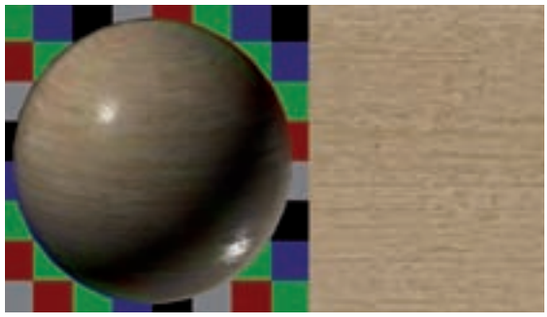
In waiting... **3ds Max, V-Ray, Photoshop (2009)**
This is one of my favourite renders. It is the main aula [atrium] of the Exchange Palace of Budapest. I was working on that project for quite some time. The modelling part was insane as you can see on the render. This altered version of the original render tried to capture the feeling of a child dragged through a museum.



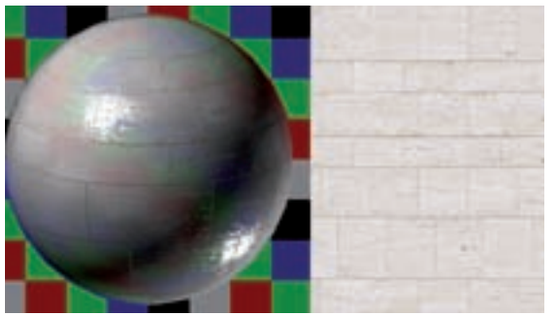
KUMU Art Museum of Estonia **3ds Max, V-Ray, Photoshop, After Effects (2010)**
This is the project I am currently working on. I started months ago, but I just can't seem to finish it because the building has so many great views. This will be my most grandiose work once it's finished. I would like to render daylight and night shots as well as interiors and exteriors with different seasons.

Material surfaces

Adding textures and materials

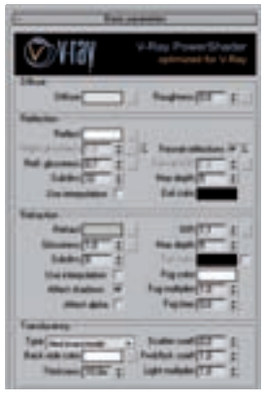


04 **There are no** complex materials in the scene. I used only one concrete material, although it appears as if there are more, but those scratches were done externally in Photoshop. It has a VRayDirt map in the Diffuse slot which has a Radius of 3 metres. The same map was used for Reflection and Bump in greyscale too.

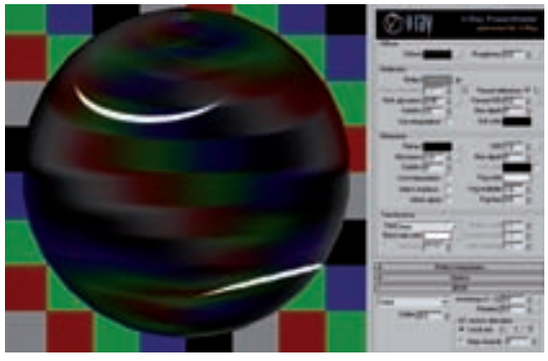


05 **The floor was** made in the same way. It has a slightly higher IOR setting to get more reflections and the VRayDirt is only set to 1.5 metres. The same bitmap is used again for all slots. I used colour correction to adjust the map.

06 **A typical dirt** map is set like this. I added the dirt map to every material's Diffuse slot. I used to render a separate ambient occlusion layer, but that meant every object had the same radius of dirt; this way, I can control each one individually. Obviously, a 6m-high plane wall needs a completely different radius to a 15cm-high vase on a shelf.



07 **The curtain is** made from a translucent material. It is set in the simplest way it can be: using Hard Wax mode. It is similar to using a two-sided V-Ray material. It isn't as nice, but much faster and, for these purposes, it is perfect.



08 **My final advice** regarding materials is always use Fresnel Reflections. If you do just a little research into everyday objects around you, you'll figure that nothing has a constant reflection but depends on the angle you look at it. And I don't only mean water or glass, but even plaster walls or fabric.

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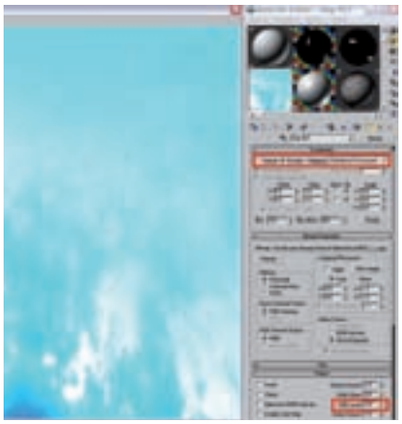
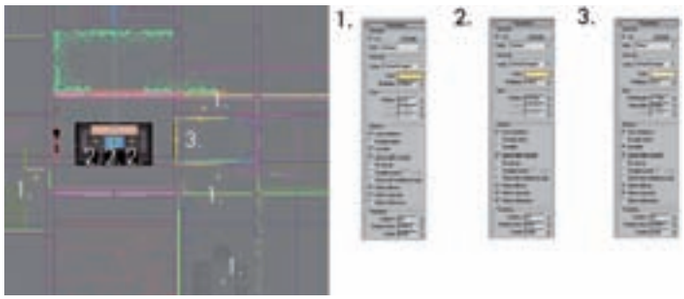
Lighting the scene

Balancing the interior and exterior



09 First, we need a global diffuse light (sky light). That was achieved by simply adding a map to our environmental override in the V-Ray render window. It's a simple bitmap I downloaded from **CGtextures.com**. Note that this is not a light source, so it doesn't produce any shadows.

10 Now put in the main light source that stands in for our sky here. It is going to be a VRayPlane positioned above our scene facing down and tilted a bit towards the camera. Attached to it, there is a VRaySky which is put in the Reflection/Refraction override.



11 The three lamps on the ceiling will provide the main light in the room. For these, I used VRaySpheres as lightbulbs. We need some supporting light sources from each side. I used small VRaySpheres with a Radius of 0.1 metres. I also needed three VRayPlanes to light the ceiling around the wooden walls on the left.

12 And here is the result of the lighting. It's a bit bright, but that's okay since the override material is white so, once it's all textured up, it will be balanced out. I particularly love the night shots because of this ambivalent lighting: the blueish outside colours complementing the warm colours of the interior and vice versa.

12 hours render time
Resolution: 2,250 x 3,000

13 This shot of the house from another angle provides an alternative perspective and is a good example of the balance between the two colours – the warm and the cold – and how well they can work together.

Modelling the scene

As you can see, there are no complicated models in the scene (except for the trees which are not modelled by me). I am really bad at this and everything you see in this image is made from primitives with the fewest and most basic of tools. Even the leaves on the ground were scattered manually instead of using the Scatter tool. I always want to get over this part as soon as possible. This is probably one of the main reasons I stick to architectural renders: the geometry is always the least complicated, as opposed to a car or anything more organic.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Rafał Waniek

3DArtistonline

Username: Edi

Website www.evermotion.org

Country Poland

Software used 3ds Max, V-Ray, Photoshop

> There's no special lighting with this one; moonlight being the only source. The atmosphere was made using environment fog, not only to create a volumetric lighting effect, but also because it can hide modelling imperfections

> All the base models were originally made for different scenes. Using the huts from the *Air Village* image, I added holes and rubble. I also tested out the Ivy Generator, which is a specific 3ds Max script for creating the creeping plant

Dawn on the Moon 2010

The idea was to create an alternative to the original *Air Village* fantasy scene, to show how much you can change in the scene just by changing the lighting and adding some details. I made the scene on the base of the *Air Village* model. It took me eight to twelve hours, I think, not including the render time, of course. After it was done we decided at Evermotion to use it as a promotional image for a training DVD.

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"For rendering, I usually use V-Ray because it is really fast and easy to use. However, it did take me about 14 hours to render this on a 16 core machine, because of the resolution displacement (4,000), and lots of details"

I made *Dawn on the Moon* based on a rough 2D concept artwork by Iwo Widulinski. The idea was to create a massive village drowned in green clouds and dust, with hundreds of small lights as the main light source and only sign of life.

"When I started to work on this I had no composition idea at all, I was just playing around with the lighting, Ivy Generator and materials. After making some test renders I went on to do the post-processing work in Photoshop, where I also added the moon. I usually create scenes from concepts, so the base composition is already established"

Software used in this piece

3ds Max · V-Ray · Photoshop

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behind the scenes

3D artists explain the techniques behind their amazing artwork

Artist info

Dieter Meyer

3DArtist online

Username: Deetz

Personal portfolio site
www.cg-artworks.com

Country Canada

Expertise I have been modelling highly detailed aircraft for over three years to use in my aviation artwork

Software used in this piece

modo 401 | Photoshop

Creating a magnificent Spitfire

Spitfire Mk5B 2010

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Part one

Part two next issue

> Model and render a realistic Spitfire for an animation or for compositing in your artwork
>
> **Dieter Meyer** specialises in aircraft modelling

The Spitfire first flew in 1936 and made its combat debut in 1939 defending a Royal Navy base in the Firth of Forth, Scotland. Since then, it has been regarded as one of the best fighter aircraft ever built. This article will focus on the modelling of a Spitfire Mk5B. This project will require a high level of skill and a good knowledge of working in modo. However, most 3D packages offer the same general methods, so this tutorial's workflow can easily be applied to other software. There is a great deal of work to modelling an aircraft and I may not be able to cover every aspect of the detailing process. I will be covering the major sections of the aircraft and the general process I follow in creating highly detailed models.

The greatest challenge you will face on this project is the ability to keep the model entirely in SubD without the need to freeze the mesh. The benefit, of course, is you can control the subdivision level at render time for a higher or lower level of detail depending on your needs. It also allows for a much easier UV mapping process.

In the second part of this tutorial, in next month's issue, we'll cover all the aspects of UV mapping and texturing the Spitfire.

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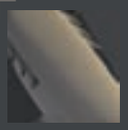
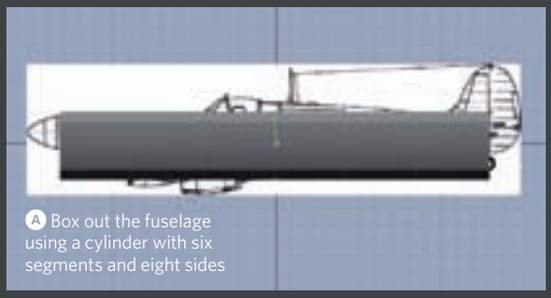


Starting the model

Creating the fuselage

Modelling



A Box out the fuselage using a cylinder with six segments and eight sides

01 Box out the fuselage

The first step is to box out the basic fuselage by making a cylinder with six segments and eight sides. Make sure its centre is zero on X and delete the two cap faces. Give it a basic oval shape and extend it from the base of the spinner to the end of the fuselage; don't worry about the rudder yet A.

02 Adjust to fit blueprint

Your next step is to begin adjusting the vertices so they line up with our blueprint. Press Tab to enter SubD mode. The nose of the Spitfire is nice and flat so we'll line up the top of the cylinder here. Take the first set of vertices and make them into a circle to match the spinner B.

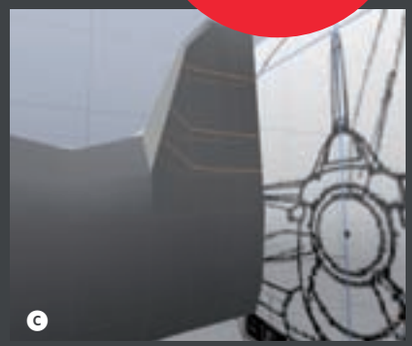
03 Continue matching adjustments

Now continue the process down the length of the fuselage starting with the side profile and then switch to your top view and adjust the width of your edge loops. Next we'll need to add five edge loops at the tail to create the base of the rudder and begin adjusting the vertices vertically to match the drawing.

04 Refine the rudder base

Here we'll continue to refine the base of the rudder by adding three more edge loops to help control the thickness. We don't want a bulky looking base here; it needs to finish off looking fairly sharp. Use the Edge Slide tool to move the edge loops and pay attention to how they match the flow of the fuselage. Everything must taper to the rear nicely C.

B



C

D

B Use the conveniently flat nose of the plane to line up the top of the cylinder

C Add extra edge loops with Alt+C and Free mode selected

D The cockpit area after adjustments to produce smooth, realistic edges

05 Onto the cockpit

The last area to deal with will be the cockpit. Start by adding an edge loop at the rear of the cockpit. Bevel the two faces that make up the cockpit inward and down and delete them. Next we'll add more edge loops to sharpen the surrounding area of the pit. You will need to arrange the edges after the bevel so they provide a continuous flow with no triangles D.

Artist Showcase

Dieter Meyer

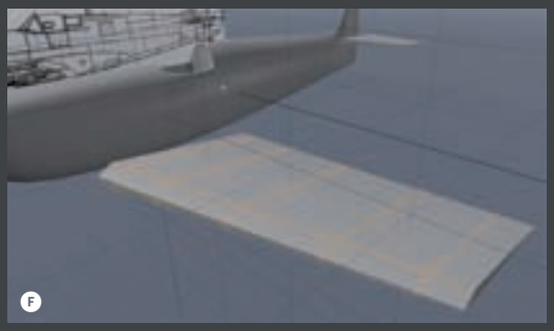
I grew up in South Africa before moving to the UK and finally to Canada. I've always enjoyed drawing and sketching and using an airbrush to create artwork, but it was around 2000 when I started using Photoshop and 3D software to create digital art.

P-47D Thunderbolt **modo 401, Photoshop (2010)**
Modelled and rendered in modo 401 with all of the textures created in Photoshop. This was an interesting project for me as I had not done a bare metal finish on an aircraft before.

Those distinctive wings

Giving the Spitfire its edge

E


F

06 Create the wings

Begin by adding a cube with three segments on the Y. Use the top view for initial placement and then the front to get the needed angle, and then scale the end down using the Action Center>Selection option. Do the same for the rear of the wing, making sure it's very thin. Remove the faces that are adjacent to the fuselage E.

07 Hone the wing shape

Move the front top and bottom edge backwards to give the wing's edges a round form. Next we'll add some edge loops to start creating a better wing shape. Use Alt+C for Loop Slice and change the count to 5 with Symmetry enabled. Repeat this process for the tailplane F.

08 Add the distinctive curve

Now we'll add more edge loops along the X-axis to give the wing its curved shape. Use the Loop Slice (Alt+C) in Free mode with a count of 2 to add the edge loops. Use the top view to ensure the rear edge lines up with the aileron edge on the drawing; we'll use this later when we cut out the control surfaces. Move the vertices on the top edges upwards to give it a rounder shape G.

G

09 Join wings to the fuselage

Extrude the edges adjacent to the fuselage to get the basic wing fillet started. You will need to add edge loops as you go and continue to refine the shape. The wings will not join to the fuselage but sit against it. Once you have made the fillet, add a small bevel to the edges that are nearest the fuselage to simulate the folded steel H.

H

On the Disc

Included on the CD is the full Spitfire Mk5B model for modo 401 so you can study the finished result.

E Boxing out the wings and tailplanes, using various views

F Adding edge loops and making the leading edge of the wings round

G Adding more edge loops to form the curve of the wing

H Placing the wing fillet to sit flush with the fuselage

Towards Kharkov **modo 401, Photoshop (2010)**
This image uses my previously made Marder III H, made in modo 401, and depicts the advance on Kharkov in early 1943. The backplate is a combination of photographs I took with a lot of painting in Photoshop

Alfa Romeo 12C **modo 401, Photoshop (2007)**
This is the Alfa Romeo I made for the combination render with my Macchi 205. modo 401 being the software of choice with Photoshop used for textures. This was an interesting project for me, learning about race cars from the Thirties and Forties – very powerful!

Organising your meshes

As you model aspects of the aircraft, you may find it's hard to see which piece is which. An easy method to organise your meshes is to right-click on the layer and choose Fill Colour or Wireframe Colour to better distinguish them. This can be done without creating separate materials, making it very handy.

Rolling and climbing

Cutting in the control surfaces of the wings

10 Form the ailerons – Part 1

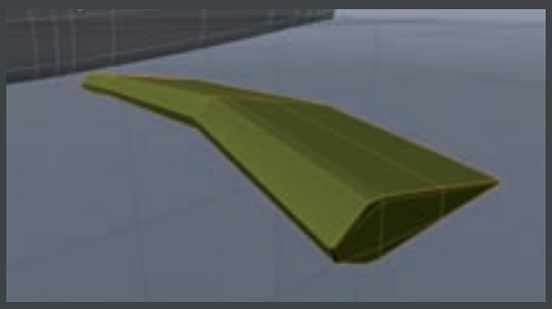
In order to cut out the aileron, first we'll need to add two more edge loops that will form the sides of the aileron. Once they have been added, select the faces that make up the aileron and Cut>Paste them to a new layer by using the shortcuts Ctrl+X to cut, N for a new layer then Ctrl+V to paste (I).

11 Form the ailerons – Part 2

Now select the edges of the aileron and bridge them so it's a solid piece. Make sure to deselect the vertical edge on the aileron or it won't work. Use the Bridge tool with three segments as we'll need to join the vertices onto the trailing edge of the aileron. Use the Join option rather than Join Averaged so the trailing edge remains exactly in place (J).

12 Form the ailerons – Part 3

The last step before returning to the wings will be to add four more edge loops to give the aileron some nice, crisp edges on the sides. Take the front upper and lower edges and pull them back to give it a rounded front much like the wing (K).



(K) Refining the aileron's shape using edge loops

13 Close the gap

Using the same technique for the aileron, we'll close the gap in the wing and then join the vertices on the trailing edge. Next an edge loop that surrounds the cut-out area will need to be added. C is the shortcut for the Edge Slice tool we'll use. Once this has been added, join the two vertices on each corner (L).

14 Sharpen up

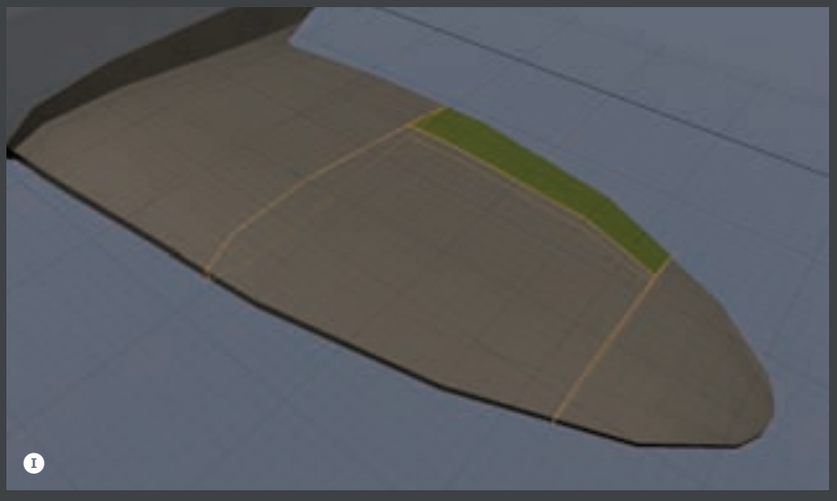
The last step for the cut-out area will be to add one more edge loop with the Edge Slice tool (C) at the corners in order to make them sharp. The same process will be used to complete the tailplanes at the back of the aircraft (M).

(I) Cutting the ailerons (wing-flaps) into the wings

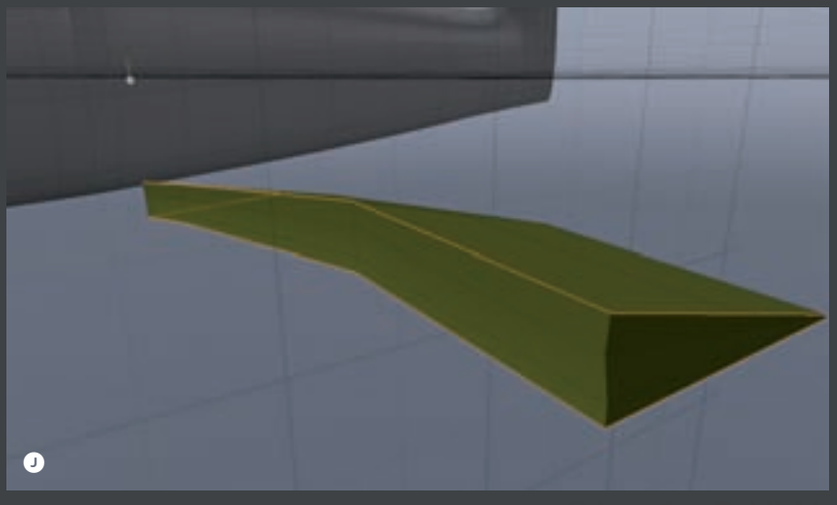
(J) Using the Bridge tool to add faces to the aileron

(L) Filling in the gaps on the wing created by the aileron

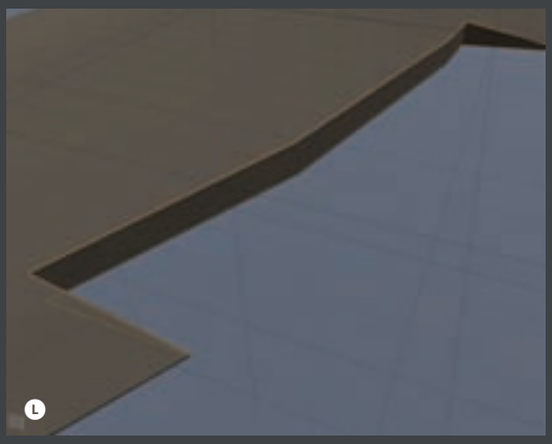
(M) Sharpening up the cut-out area of the wing



(I)



(J)

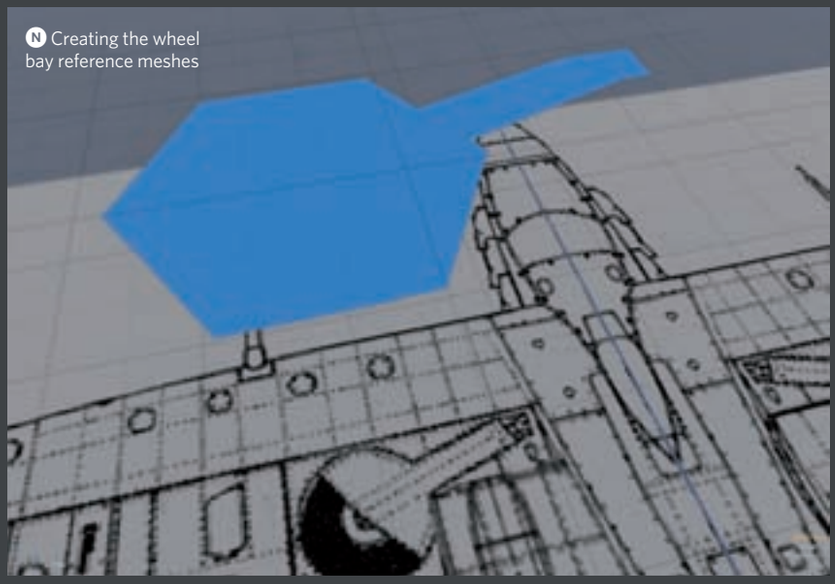


(L)

(M)

Wheel bays

We have to put the wheels somewhere!



N Creating the wheel bay reference meshes

15 The shock process

This step is one of the more difficult tasks of making a SubD aircraft. It will require more patience and work to get it absolutely right. Begin by creating a six-sided cylinder on a new layer, but don't add any depth. Then, using the Polygon Pen tool, trace out the area where the shock will lie. These two meshes will be used as the shapes to trace onto the wing N.

16 Position your meshes

Arrange the cut-out mesh in blue as shown. Use the Edge Slide tool to arrange the edges on either side of the cut-out mesh so they won't intersect. With the cut-out layer underneath your wing layer, select first the wing layer then the cut-out mesh layer. Then opening Geometry> Boolean>Drill, use the Stencil option and Last Selected as the drive mesh O.

17 Going full circle

Hide the cut-out mesh layer. Select the faces that make up the stencil area on the wing and Cut>Paste them to a new layer; these will be used later when we make the landing gear. Connect the vertices together to form a complete circle. You will also notice that the top of the wing received the stencil – this can be deleted by using Backspace P.

O

O Adding the stencil of the wheel bay to the wing mesh

P Cleaning up the vertices to form a complete circle

Q Finishing off the wheel bay, adding caps and sharpening corners with edge loops

The Symmetry option

Many 3D modellers like to work with half of the object and then duplicate and join the edges. I prefer to see the entire shape take form and frequently use the 'X' Symmetry option. Even after I have finished an object, sometimes I may need to go back and edit the surface. The Symmetry option makes edits and modelling certain areas a snap.

P

Q

18 Mould the edges

Now we'll add edges to the corners of the circle and edges to where the shock will lie using the Edge Slice tool (C). Once this is finished, double-click the outline to select the stencil and extend it inwards and downwards (using Z) very slightly, then finally down until it's deep enough to hold a wheel.

19 Final wheel bay touches

Use the Bridge tool and Edge Slice tool to connect the edges together to form a cap on the wheel bays. As always, add edge loops to sharpen those edges on the corners. Use the drawing provided to edit your shape so it matches the circle of the wheel bay Q.

Cockpit

Let's add a frame and some glass

Problems and solutions

One of the difficulties of working with SubD is that in order to refine a specific area, you may need to add a ton of edge loops. If your model is one piece, it may lead to an incredibly high-poly SubD model. When I model an aircraft, I use the major seams on the body panelling to break the model up, which allows me to better control the density of my mesh.

20 Place your window cuts

First we need to add some edge loops to control the mesh when we make our cuts for the window opening. Using the Slice tool (Shift+C), add two cuts, one to the nose at the seam of the engine and then another in line with the aerial. Select the faces in between and Copy>Paste to a new layer Ⓡ.

21 Adding depth

Now we can position the edge loops around the window area to be cut out. Use the Edge Slide tool with Duplicate on to position the new edges. In Polygon mode, Copy> Paste the faces that make up the window to a new layer, then extend the edges of the opening inward to give it depth. Once again, add edge loops around it and the corners to sharpen the shape Ⓢ.

22 Begin the canopy

Now we can get started on the actual canopy for the Spitfire. We'll start off with a basic cube with two segments added in X, Y and Z. Place the cube into position and move the vertices to the general shape. Now we'll begin refining the shape by adding edge loops to isolate the frame and window area Ⓣ.

23 Divide the canopy

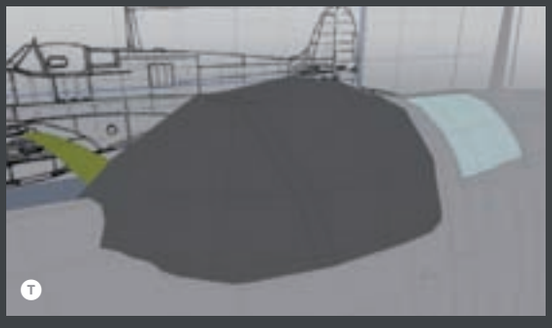
The next part of this construction will require us to separate the front and sliding section of the canopy for further refining. Select the faces that make up the front area and Cut>Paste them to a new layer; make sure to name it accordingly. Now we can continue on the front section without having to add unnecessary subdivisions to the rear section.

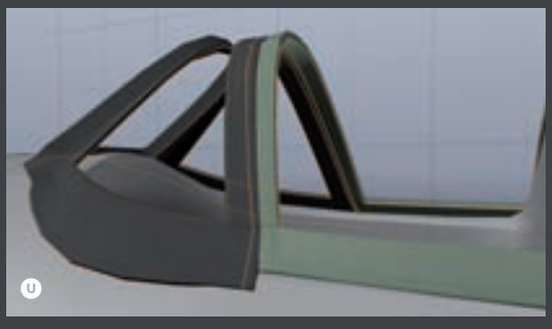
24 Focus on the details

Once we have refined our canopy to something close to the real thing, we need to separate the glass areas onto new layers and give the canopy frame some depth so it doesn't look too thin and unrealistic. I select edges and use the Edge Extend tool (Z) to do this a few times, constantly keeping in mind that I want the edges of the canopy nice and sharp Ⓤ.

Keep it plane and simple

Although I may not have been able to show how to create every element of the Spitfire here, for all elements the construction is the same. Start with a cube or cylinder as a base and avoid adding segments initially as this just creates problems. Building from a very basic primitive will help you see where edges should go in order to refine your mesh. Pay close attention to the flow of the aircraft and try to use as many reference photographs as you can to help with modelling accurately.



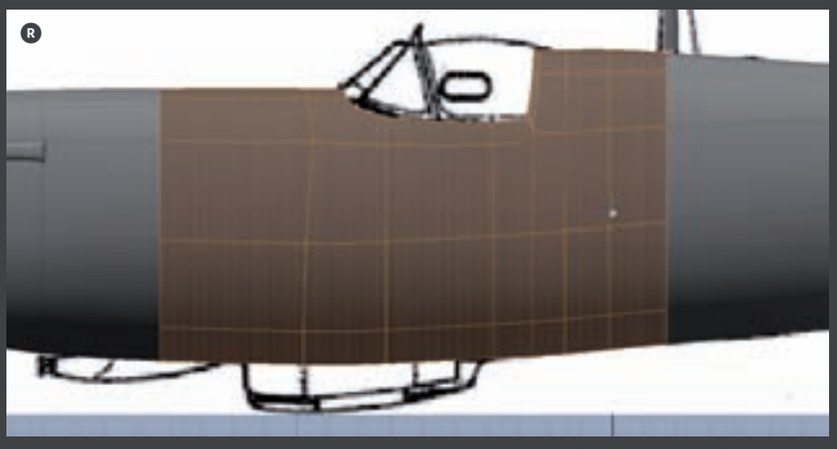


Ⓡ Isolating the cockpit area in order to cut out the windows

Ⓢ Cutting out the rear window of the cockpit

Ⓣ Box modelling the canopy area using edge loops to refine

Ⓤ Adding depth to the canopy using the Edge Extend tool (Z)



Wheels and whatnots

Adding the final details

V

W

X

25 The wheels on the plane...

The drawings provided don't really show the detail in the wheel or shock. For this tutorial, we'll use a cylinder, torus and a disc. Let's start by making a torus for the tyre and delete the inner faces. The disc, after a few bevels will be the rim of the wheel. The cylinder will be the shock. Visit the website provided to add further detail to this area of your model V.

26 Add the wheel bay doors

Now we'll use the cut-out mesh we removed earlier from the wing to make the wheel bay doors. Use your drawing and delete the areas that aren't needed. Use your Edge Slice tool (C) to add extra edge loops as shown and then use Polygon Thicken to give it some depth. Add two edge loops to sharpen it up W.

27 Rudder time

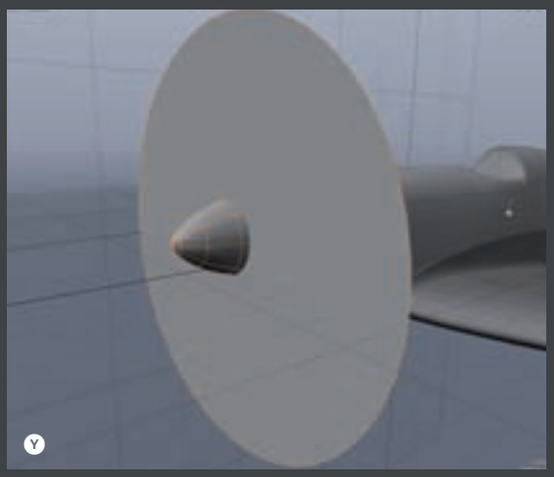
To make the rudder, start off with a cube. Align the cube into position and scale down the rear edges until they're almost touching. Then begin to add edge loops using Loop Slice (Alt+C) and refining the position. We'll need to sharpen the corner near the top the same way as the aileron corners X.

28 Get in a spin

Since we're going to show the Spitfire in flight, we'll need something to act as the propeller blades and the spinner cover. Using the front view, create a disc that matches the diameter of the blades. Use the cylinder primitive; just don't extend it to give it any depth. Lastly, create the spinner, from the front view, by creating a cylinder with eight sides and three segments and scale the edges to match the drawing Y.

29 Spit-fire power

The last details to add are the cannons, named aptly for their explosive power on the Mk5B and some intakes. Use a cylinder for the cannons, deleting the rear face that extends into the wing. For the intakes, we'll use cubes and control the round edges by placing edge loops slightly away from the edge Z.



Y

NEXT MONTH

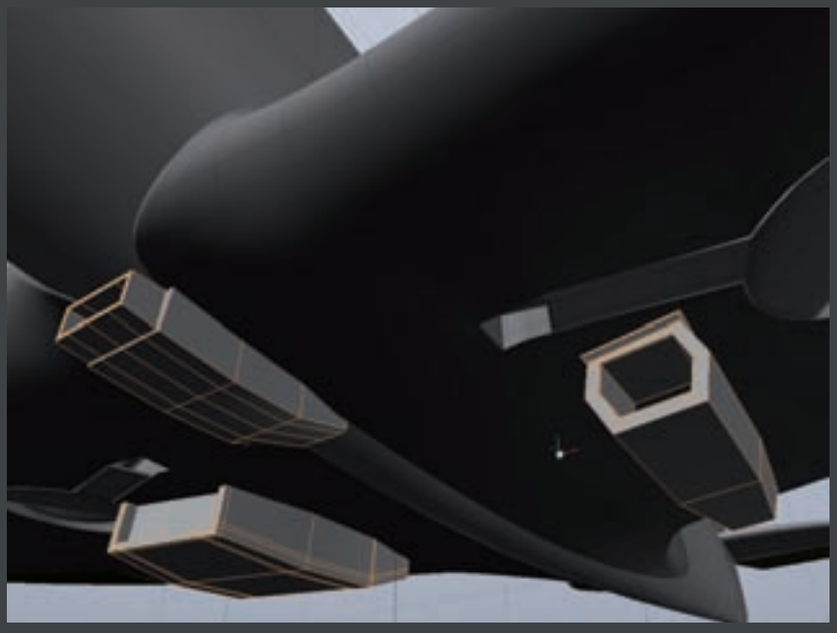
Now that we have a Spitfire ready to fly, in the next issue of **3D Artist** I'll show you techniques for UV mapping, texturing and lighting your new aircraft. We'll then place it in a scene and really give it some life! There will be final scene files in modo plus OBJ models so you can texture using your preferred program.

V Adding the wheels to the wings using a cylinder, torus and a disc

W Using the cut-out mesh to model the wheel bay doors

X Creating the plane's rudder starting off with a cube

Y Adding the propeller placeholder and spinner



Z Adding the cannons and intakes to the Spitfire

I made this...

Incredible 3D artists take us behind their artwork

Artist info

Anton Cherenko

Personal portfolio site
www.cherenkoart.blogspot.com
Country Ukraine
Software used 3ds Max, V-Ray, OnyxTREE, After Effects, Photoshop

“The first step was to find an interesting point of view. The GH House architectural design was great in that there were many good views to explore and choose from, but I wanted to find a unique angle, one that would distinguish my image from the others”

“In order to achieve a more realistic view of the water’s surface, I created ripples originating from the boat and lamps. First, I made a plane, converted it to editable poly and changed the vertex locations for my canal form”

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> The trees and bushes were generated using OnyxTREE's TREE STORM plug-in for 3ds Max, which were converted to V-RayProxies to make my work with the scene and image render possible, as far as memory resources were concerned

The GH House 2010

This was my entry for the GH House Archviz Challenge on **www.ronenbekerman.com**. GH House was designed by Ronen Bekerman at the Israeli firm, Dunsky Kornhauser Architects, and was provided for participants to place in a context of their choice. The environment was at the discretion of each artist; we just had to keep the basic house geometry.

> There weren't too many complicated objects to model, neither were there many parts of the structure that I changed. I removed the walls along the perimeter, and added a canal – an important element in my scene, adding the dramatic mood I was looking for – with a bridge going over it

Software used in this piece

3ds Max · V-Ray · Onyx TREE · After Effects · Photoshop

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Carlos Ortega Elizalde

3DArtistonline
Username: carlosortega3d

Personal portfolio site http://stroggtank.cgsociety.org

Country Mexico

Hardware used Intel Core i7 920, 6GB RAM

Expertise Carlos specialises in 3D modelling, UV mapping and texturing

On the Disc

Supplied on the disc is the model of the bow with UVs in OBJ format.

tesalia_bow_3da.obj

Software used in this piece

Maya | Photoshop | mental ray

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Step by step: Model a cute fantasy figure

Tesalia 2010

Modelling

"A young female centaur visiting the ruins of her birthplace Arkadhia, an ancient mystical city"

Carlos Ortega Elizalde specialises in modelling and texturing

Tesalia was created from scratch in Maya and rendered in mental ray. I created her as one of the two main characters for an animated story which I'm still developing. I went for keep-all elements in a stylised fashion, keeping cartoony proportions without being too childish. One thing I took a lot of care with was the modelling. As this is a female character, the silhouette had to be thin and delicate, but balanced and solid at the same time. The armour, weapon proportions, facial expressions and colour palette had to reflect the attitude of the character: cute, pure and delicate, yet dangerous, agile and strong. The final rigging was one of the most difficult tasks, as it was tricky to manage extreme positions in face and body and avoid a harsh look at the same time. At the end of the project, the rig could have used a bit more cleaning, but that stage was enough for the still images purpose.

Concepts

Inspiration behind the scene

01 **I created the** original model about six years ago in Carrara 2, as one of my first 3D works since centaurs are one of my favourite fantasy characters. Back then, my skills were pretty low, so this year I decided to model the character again with more style and detail.

02 **I changed some** things from my original concept like thinner proportions and a different hairstyle. I did a quick sketch in Photoshop to block the main proportions of the body and the zones the armour would cover, as well as the basic colour palette, which consists of a dark magenta and white.

03 **Most of the** inspiration I had for the armour ornaments were the beautiful floral graphics created in the Arts and Crafts movement and, in a special way, one of the pages of *The Centaur*, which has beautiful decoration. This helped me to enforce the pure and elegant nature I wanted for my character.

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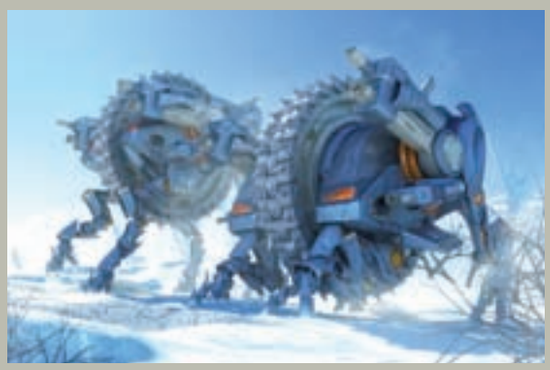
Artist Showcase

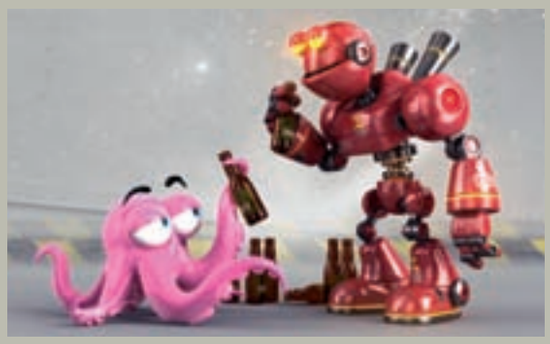
Carlos Ortega Elizalde

I'm a graphic designer and 3D artist from Guanajuato, Mexico. I currently work as a tutor in the media department in Guanajuato University, focusing on Motion Graphics and 3D art most of the time. I'm also a freelance 3D modeller although I often find that personal 3D design work is almost a full-time job in itself.

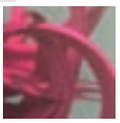


In the Ice Zone **Maya, Photoshop, mental ray (2010)**
The Echidna, all-terrain vehicle in a mission through the Ice Zone. This model was created for an online speed modelling contest.

Fulgencius the Wise **Maya, Photoshop (2009)**
Fulgencius, aka The Wise. He might be wise, but he has a terrible memory. Tonight is this 200-year-old wizard's birthday party, but he can't remember where it's taking place!

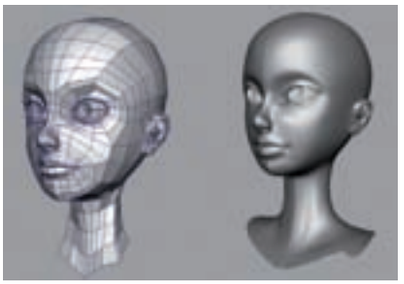


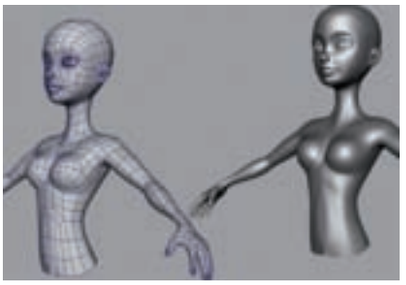
End of the Year **Maya, Photoshop (2009)**
This images shows a weird New Year's party taking place in a space-based environment, attended by just a robot and an octopus.



Creating the model

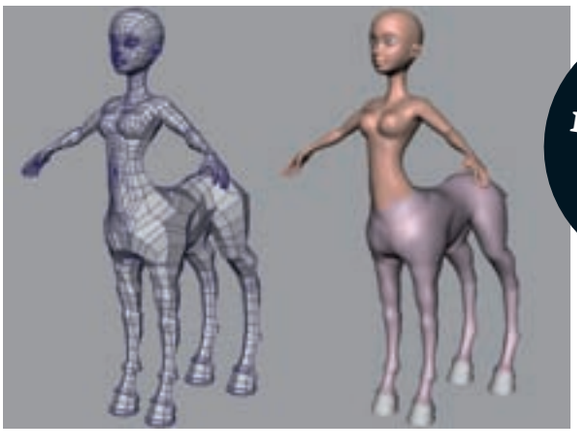
How the centaur girl was created





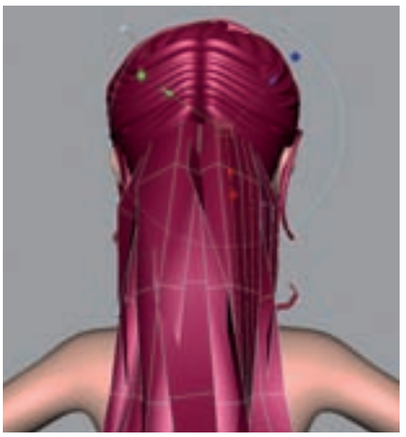
04 **Using my sketch** as reference, I imported it into Maya as an image plane to maintain proportions. Since this was a new version of my character and not a different one, I used only my old model's head as a reference, though many of the details were refined later to suit the new style.

05 **The human torso** was probably the part on which I spent the most time. It had to have nice topology and decent anatomy, but still be recognisable as part of a stylised, cartoony character. I went for an athletic and slender body, trying to mix it with an elegant, cute and attractive look.



4 hours render time
Resolution: 3,150 x 4,200

06 **The legs were** modelled extruding from the waist edges of the torso. I modelled the whole horse body almost as an animal counterpart of the human torso, aiming to produce delicate but athletic legs. I created the horse body so it could be recognised as 'female' just from looking at the animal part.



07 **The hair consists** of flat polygonal planes. I started using a cylinder to recreate the mane and tail's volume, then I extracted several strands to get a nice density of thin planes. I sculpted them by moving vertices by hand and using modifiers like Bend and Twist on each strand.

08 **To refine the** detail in the hair, I inserted several edge loops in each stripe of hair, then moved some of the new edges outwards and others inwards, to reinforce the simulation of the hair density in each strand and the flow of each stripe.

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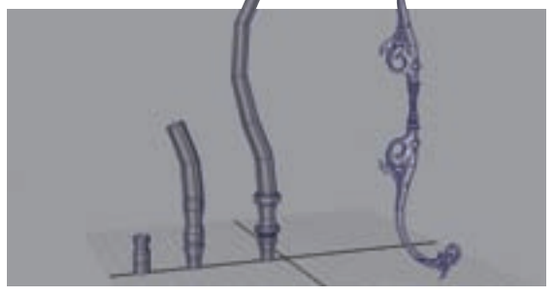
Refining details

Finishing touches and the environment

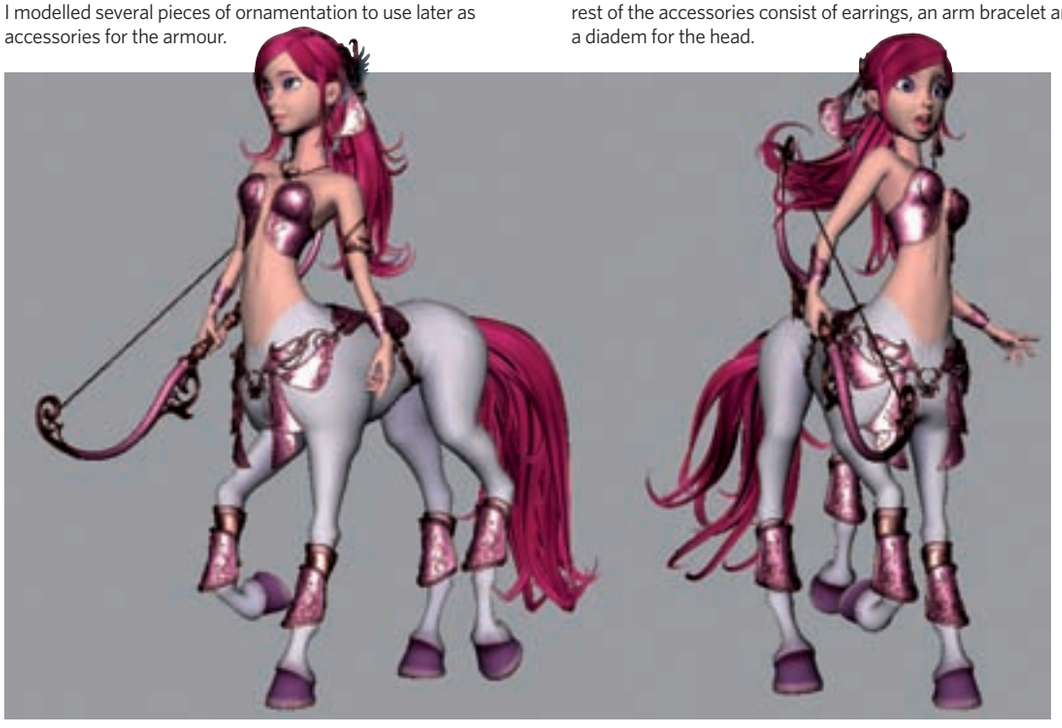


09 **The last step** for this character was to model the armour and bow. I started with all the armour plates, most of which consisted of extracted geometry from the body, then tweaked and refined them to fit the way I needed. I modelled several pieces of ornamentation to use later as accessories for the armour.

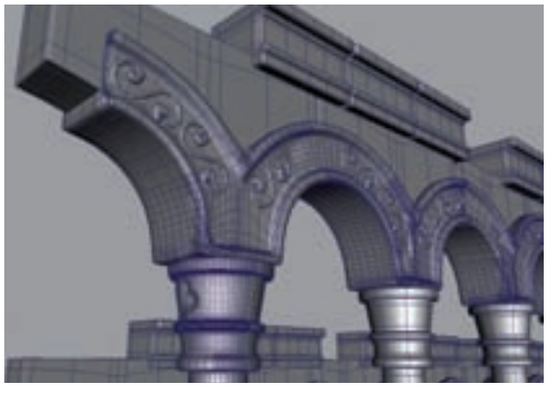
10 **The basic bow** shape was created from a cylinder, extracting the top face and tweaking the verts as I progressed. The bow's decoration was added later as separate geometry, using some of the pieces I'd previously created. The rest of the accessories consist of earrings, an arm bracelet and a diadem for the head.

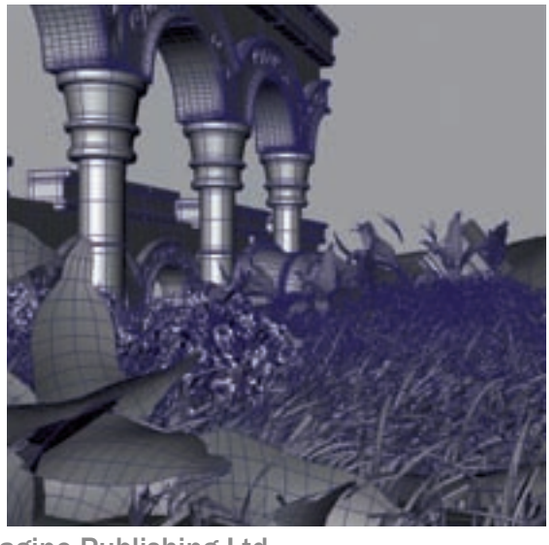
Colours and materials

I painted all textures by hand. I didn't want to create realistic skin or hair (just personal taste), so I only painted different skin tones and very subtle moles in the skin map, while for the hair, I painted colour variations as well as an Alpha map for the tips of the hair. I used the misss_fast_skin shader for the skin, an Anisotropic shader for the hair and a Blinn shader for the armour. I kept my palette to a few colours – the dark magenta with gold hints to suggest royalty, but included some wear in the armour to prove this girl knows how to handle herself in battle.



11 **I created a rig** for the face and body to get several expressions and poses, from which I picked a couple to render inside an environment as still images. The environment which I decided to create was the ruins of the main city where the whole story plays out, adding a more 'solid' context for the viewer from a still image.





12 **Taking inspiration** from some Ancient Greek ruins, I modelled a series of arches and columns, in which I sculpted some damage using Subdivision surfaces. I duplicated the arches section to get a decent set of architecture that could resemble the ruins of a once powerful ancient city.

13 **The final touches** regarding the modelling of the whole scene was the addition of plants and flowers. The ground is a simple plane deformed with Maya's Sculpt tool. The grass, plants and flowers were created using Paint Effects and then converted to polygons.

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I made this...

Incredible 3D artists take us behind their artwork

Artist info

Simeon Patarozliev

Personal portfolio site www.spatarozliev.co.uk
Country Bulgaria
Software used 3ds Max, V-Ray, Digital Fusion, mental ray

"In terms of composition, the image is fairly simple. I wanted to give the car more space to breathe and was wondering if I should remove the opening in the wall, but without it, the image lost a lot of depth and the background itself became too uniform"

The Getaway Vehicle 2010

A bank robbery that didn't go as smoothly as planned... I focused on keeping the image simple in its modelling and lighting, but maximising the impact of intriguing details such as the blood-spattered loot. I first used another car's blueprints to set basic proportions, then a lot of references.

"The lighting was done using the plug-in, Smart IBL. In general, the scene includes a HDRI, a direct light acting as the sun, and subtle V-RayShadows"

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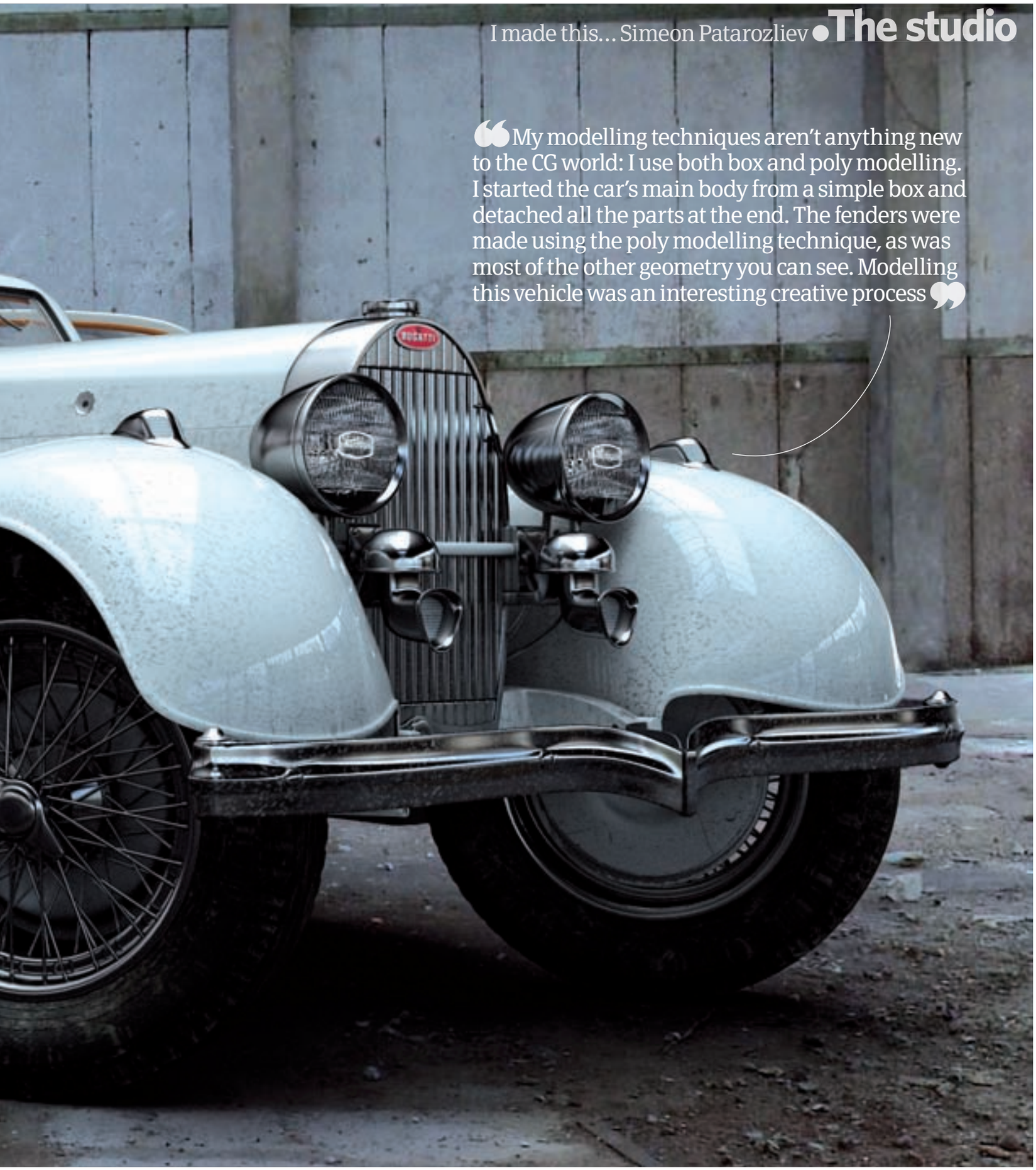

"My modelling techniques aren't anything new to the CG world: I use both box and poly modelling. I started the car's main body from a simple box and detached all the parts at the end. The fenders were made using the poly modelling technique, as was most of the other geometry you can see. Modelling this vehicle was an interesting creative process"

"Rendering with V-Ray, I used Irradiance Map, plus Light Cache. I also added an Ambient Occlusion pass made in mental ray and used simple masks to adjust the colours and the contrast"

Software used in this piece

3ds Max · V-Ray · Digital Fusion · mental ray

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Modelling

Software used in this piece

Maya | ZBrush | Photoshop

Step by step: Modelling a fantasy scene

Cadwallon Wagon 2010

How to create an image in the style of fantasy artist Paul Bonner, and keep a good workflow when creating large scenes

Greger Pihl specialises in character modelling

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Step by step

Easy-to-follow guides take you from concept to the final render

Artist info

Greger Pihl

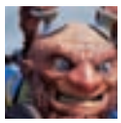
Personal portfolio site www.greger.cghub.com
Country Sweden
Hardware used Intel Dual core 3.0GHz, 4GB RAM
Expertise Most of my 3D work centres on character modelling

Creating a large scene like this is something new to me, which I wanted to explore. I also wanted to practise my skills when working from concepts which are not my own. You can learn a lot from other artists by tracing their pen-strokes.

I tried to find a good workflow for this project, which most suited my interests. A big part of that was leaving out UV-mapping entirely – that way I didn't need to worry about Displacement maps or imperfect seams at the rendering stage. I also saved a great deal of time.

Instead, I used Decimation Master in ZBrush which allowed me to bring a poly-reduced Sculpt mesh directly into Maya without losing too many details.

I rendered out the scene with all sculpts in place using only one greyshader, but with a light setup. The render was then brought into Photoshop to paint in some colours and textures.



Original artwork

Concepts and origins

01 I was looking at the art of Paul Bonner for this task. I just love his fantasy world with the unique orcs, dwarves and dragons, and the colours and lighting of his art is simply magical. After looking through his art-book, I decided to do a 3D remake of *Wagon Cadwallon.*

3D Artist would like to thank Paul Bonner for his permission to reprint his artwork for this article. Paul's work can be seen at www.paulbonner.net and his latest book, Out of the Forests, is available now through Titan Books.

02 Besides the content, I liked the painting a lot as it is a good size and has the perfect amount of detail for this exercise. There is plenty to do, but at the same time it doesn't feel too overwhelming. I studied the picture for a while and tried to figure out what style I wanted on the render. I looked at some miniature doll scenes for inspiration.

03 Reference material is always a good thing, even when you have a good concept to start with. For the oxen, I found some accurate anatomy references, which I could use as image-planes when modelling the base mesh. When sculpting details later on, I looked closely at the original painting to get the style right.

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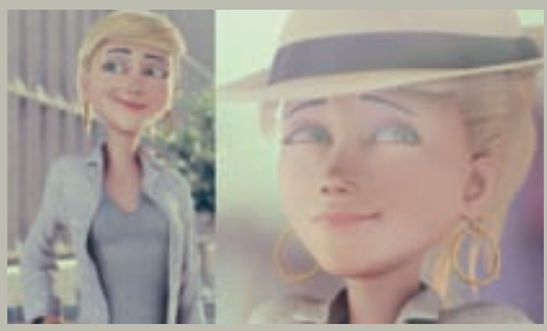
Artist Showcase

Greger Pihl

I finished a 3D art course in Sweden in 2005. Since then, I have been working on commercials and games. For the first few years, I was a 3D generalist, but lately I have been leaning more towards character modelling. At the moment, I work as a character artist at Avalanche Studios in Stockholm.



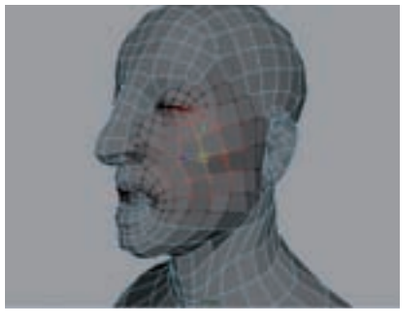
Skyr, Q-meieriene **ZBrush, Maya, Photoshop (2009)**
This is a character I made for a Norwegian commercial while working at a company called Swiss International. ZBrush and Maya were used to build the model, then it was textured in Photoshop. I did not render the character.

Assassin **ZBrush (2008)**
Here is a little personal project I did a while back. I started with a human base model in ZBrush and just sculpted what came to mind. Even though it is a few years old now, I still like the final result.

Resistance Retribution **(cinematic) ZBrush, Maya (2010)**
This is a game cinematic made by the Swedish company Visual Art that I had the pleasure of taking part in. It's for the game *Resistance Retribution* and the project is called 'Shattered World'. I did a bit of sculpting, but also some animation, lighting and character posing for this artwork.

Creating the figures

Building them in Maya



04 **I started by building** all the base models in Maya for the characters. Except for the basic modelling tools in Maya, I usually use Soft Selection to shape my models. In addition, the Sculpt Geometry tool is great to smooth out and relax the topology, offering a clean mesh for sculpting.

05 **With the basic** shape of the body done, I began to add clothes. I started with primitives and, using Soft Selection, shaped them to fit the characters. Edges that needed to be sharp were bevelled, making my job a bit easier at the sculpting stage.

06 **When I'd completed** the base meshes, it was time for some sculpting. I mostly used the Claytube brush to block out shapes, even when blocking small details. Dam Standard brush was used to get fine, sharp lines and small wrinkles and the Inflate brush to bulge out muscles and folds.

07 **For the hair,** I used Maya's Paint Effects. I extracted a part of the character mesh, where I wanted the hair to grow, found a good hair preset and then simply painted the hair onto the mesh. Next, I converted the effect to polygons and then imported the hair into ZBrush for further shaping.

08 **Once the character** sculpt was done, I exported the lowest resolution parts to Maya and set up a very basic pose rig, based only on joints, so I could rotate every limb into place. When the posed mesh was imported back to ZBrush, I replaced it with the lowest resolution of Sculpt and the details were updated.

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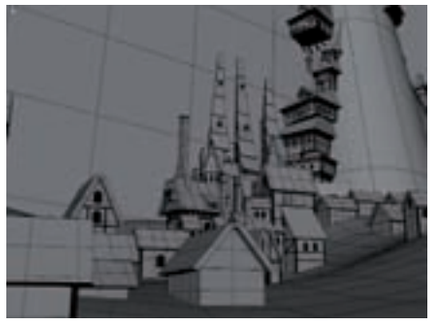
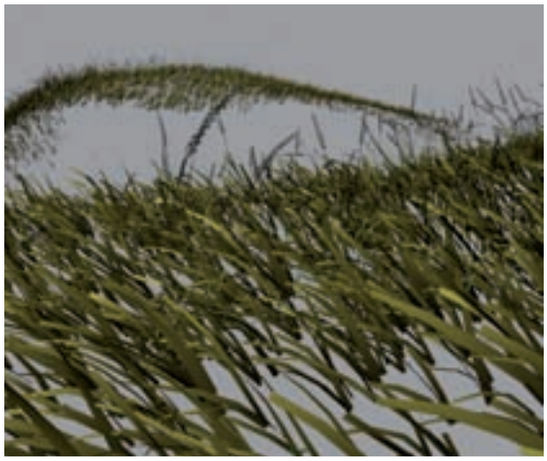
Refining the details

Finishing touches and the environment

09 When building the village, I used the painting as an image-plane to trace the position of the houses. I built one house and then used copies of it to build the whole village. When I had a good layout, I tweaked individual houses for the desired look.



10 The trees were also modelled with the original painting as an image-plane. I began with a cube and extruded the branches. I also created the ground, some stones and a stone wall. When they were done, I took them into ZBrush, along with the village, to sculpt in more detail.



11 As a last detail to the scene, I added some grass, again using Paint Effects. I used the ground mesh I created and made it paintable, chose a grass preset and started painting. Finally, I cleaned up the scene so I could import the grass into my render scene later.

12 With the sculpts done, I now needed a render setup. In this project, I wanted to try sIBL, which is an HDRI-based render preset, which can be downloaded free from **www.hdrlabs.com**. It will set up all render settings for you in one simple click, based on an HDR image of your choice.

Colours and materials

Instead of texturing all the models with UV-maps, I chose to render out the scene in greyscale and then colour the rendered image in Photoshop. I personally like working with adjustment layers, and to keep them available throughout a project, never flattening the image. This way, I can easily go back and tweak any part of the image. I colour everything using Soft Light as blending. After that, with the blending set to Overlay, I added some textures and moved and warped them into place. Finally, I went over the full image, painting in some variation to the colours and adding extra details.

1 hour render time
Resolution: 4,267 x 3,000

13 With all elements set to go, I just needed to put everything together. Using Decimation Master in ZBrush, I poly-reduced my sculpts, making sure not to lose any of the finer details. All of the decimated sculpts were imported into the render scene and it was easy to move them into place. The complete image was now ready to be rendered.

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3DArtist

Masterclass

Christian Darkin explains how to successfully incorporate your 3D models into live video footage and offers tips on how to contend with motion

3ds Max

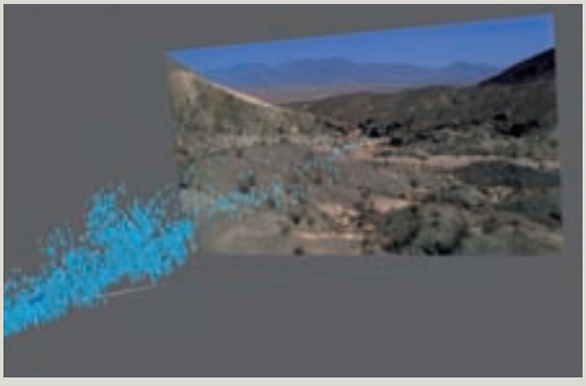
Compositing 3D into video

"How to use Toxik and MatchMover to integrate CGI into a moving video shot"

Creating realistic 3D objects and animations is one thing. Integrating them into live video shots is something else altogether and requires a wide range of extra skills.

Not only do you have to light and colour balance your 3D work effectively, but you've also got to add realistic shadows and interaction with the surrounding video shot. As if that wasn't enough, there's often motion within the shot to contend with, and if the camera itself is moving – especially if it's moving in 3D – then your whole effect needs to be motion tracked to keep everything locked together.

A



This kind of work requires knowledge of a host of 2D and 3D techniques and different software packages. In this tutorial, we're creating a sci-fi scene in which alien buildings are placed into a shot video clip.

We're modelling the CGI elements in Max (although the project would work just as well in Maya), and we're relying on Toxik to do our final composite (although After Effects would do the job equally well).

This is an ambitious enough shot to pull off, but it's made considerably tougher by the fact that it was filmed from a helicopter so the camera is flying over, around and through our CGI buildings.

Traditional 2D motion tracking just isn't going to cut it and we have no measurements of objects on the ground or details of the camera's lens or movement from which to work. What we'll need is a virtual camera with the same zoom and motion to render our 3D elements.

You can do this manually, frame by frame, but without the needed information it would be a time-consuming task, and the results would probably be less than perfect.

This is where MatchMover comes in. MatchMover can take a 3D shot and, by tracking hundreds of points within the scene automatically, it can work out not only how the camera is moving, but also how its lens is set.

The results aren't always perfect, so MatchMover does allow you to clean up your track manually, but it will take care of most of the work and, in most cases, you'll get a usable track with automatic settings.

Once the virtual camera has been created, we'll need to construct our 3D scene using the video clip as a reference in the background. It needs to be lit it in a way that's similar to the background shot, and we'll need to output a series of render

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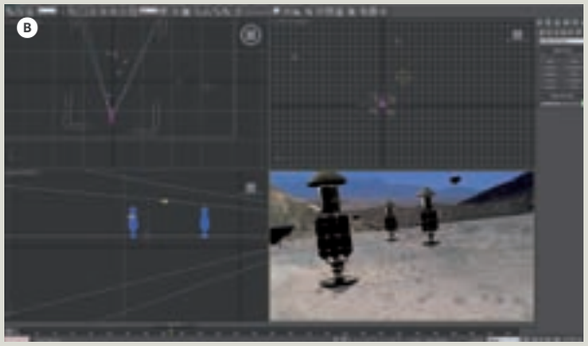

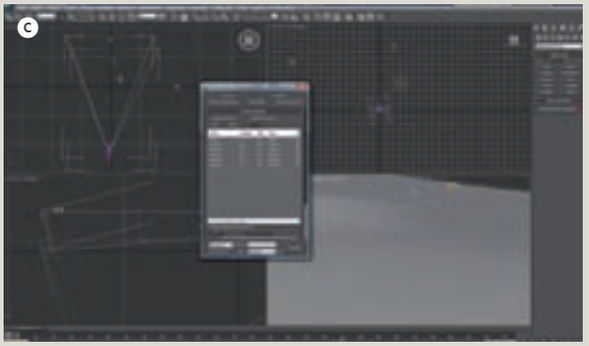

Motion tracking

Motion tracking falls into two distinct categories.

The kind of tracking that is done by compositors like After Effects simply treats the video image as a flat screen and traces its movement over time. This makes it fast, and gives good results for horizontal and vertical movement and tracking in and out. The results can then be mapped onto another flat video sequence.

This is good enough for most shots. However, it won't work for a camera moving around or over the top of an object in 3D. For these situations, you need a tracker like MatchMover which creates an exact replica of the camera, its lens and its motion which can be imported into your 3D package, allowing you to render out a 3D element with unrestricted motion.

passes so that once the compositing is started, there will be the vital opportunity to tweak the colours, shadows and highlights of the CGI elements.

Lastly, everything needs to be brought together with colour correction so that the various elements of the shot blend into one image seamlessly.

01 Track the shot

Import your video clip into MatchMover as a series of still frames. The package will track most scenes automatically (although it takes a while) creating a series of markers and a virtual camera mimicking the real one. If the track doesn't look good, it's usually because the package is tracking lots of objects moving around within the shot and getting confused. You can solve this by creating track points yourself A.

02 Light and render the 3D elements

Bring the tracking data into the 3D application of your choice (MatchMover will recreate its tracking points and camera) and add the video clip as the background image. You can now line your 3D objects up with the scene and light them to your preference. Helpfully, all the tracking points in MatchMover are numbered, so a good tip is to take note of the number of one or two of them close to where objects in your scene need to be placed, so that you can easily find their positions in your 3D scene B.

03 Rendering

Render out your animation using separate render passes for every aspect of the shot. Ultimately, this will give you more control in the composite. We've exported the diffuse, lighting, specular and shadow settings as separate image sequences. We've also used a matte/shadow material to create shadows on the ground which, in turn, we'll be able to control at a later stage. In addition, we've created a Z-Depth matte, and generated a separate rendering of some ground fog for the scene C.

04 Basic composite

Bring your CGI work into your compositor (Toxik in this case), then import your original footage and create the initial composite. Here we've used Blend and Comp nodes to combine all our various render passes into a single image. By changing the blend method and opacity of each, we can tweak the lighting and shadows to create a basic composition. It looks okay, but it's not perfect D.

05 Colour matching

To improve the effect, there needs to be a little colour correction. The key here is to alter the CGI elements to blend them into the background footage. Toxik's flowchart allows us to colour correct the various passes separately or together by simply dropping a colour correction filter in between any two nodes. Here we're reducing the saturation and warming up the colour temperature of our CGI to make it more believable. We've also added some blur to match the real video shot E.

06 Colour correction

With the colours matched, a second layer of colour correction can be added – this time it is placed at the end of Toxik's flowchart so that it affects the whole scene. By working in this way, the final colour correction effects are added to a scene which is already as well matched as we can make it. This is where the scene is given its final look, grading it, in this case to create a darker, colder film with raised contrast and less saturated colour – a sci-fi thriller look F.

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3DArtist Questions & answers

Welcome to the Q&A section where we answer all manner of technical questions on the most popular 3D programs such as Maya, 3ds Max, CINEMA 4D, Poser and Vue

Need help fast? Join the The Advisors

Maya
Lance Hitchings
www.hitchingsdesign.com

Lance is our Maya master and in this issue he looks at the various ways of creating authentic motion blur in your still-shot projects to simulate movement

3ds Max
Ryan Knope
info@ryanknope.com

Ryan is our architecture and 3ds Max expert. This time he looks at how to effectively produce soft furnishings for interior designs

Maya

Blurring reality

"What are the basics of creating motion blur in action scenes?"

Motion blur is a phenomenon that occurs when real-world objects are photographed by real-world cameras. Motion blur occurs when the object is moving fast enough that significant movement occurs during the time that the shutter is open. The photograph records that movement as a blur.

When rendering, Maya provides quite a few different ways to achieve motion blur. Both the software renderer and the mental ray renderer offer motion blur solutions. While the software renderer only offers a single solution, mental ray offers several: 3D raytraced motion blur, 3D fast Rasterizer (aka Rapid Scanline) motion blur, post-processing 2D motion blur – which uses motion vectors – and finally, the ability to utilise compositing software to create the motion blur using motion vector data.

When deciding on motion blur, the main consideration is quality versus render time. Raytraced 3D motion blur is the highest quality, but ridiculously expensive in render time. Other methods are much quicker, but, as a result, produce lower quality renders.

01 3D raytraced motion blur

Both Maya's renderer and mental ray offer 3D raytraced motion blur. The software's Blur By Frame and mental ray's Motion Blur By let you specify how many frames are included in the calculation. More frames produce a larger blur. However, mental ray also offers Motion Steps, which enables you to produce a segmented motion blur, while the software does not. A segmented motion blur allows the blur to occur along an arc of movement, as demonstrated in the screengrab.

When performing a raytraced motion blur, for each pixel, Maya shoots several temporal rays (based on the different positions of the object during the time the shutter is open) for each spatial ray. This can significantly increase render times. This image with no motion blur took 4.5 minutes to render. In contrast, with 3D raytraced motion blur applied, the render took 42 minutes (A)(B)(C).

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CINEMA 4D
Daniel Lovas
http://lovas.cgsociety.org/gallery/

Daniel is our resident CINEMA 4D specialist. This month he explains how to best create raindrops and a fitting environment in which to place them

Vue
Dominic Davison
www.3dartistonline.com/user/dom1

Dom is one of the top people creating realistic landscapes in Vue. In this issue he explains how to make your own clouds

Poser
Paul Francis
www.3dartistonline.com/user/stormdraingfx

Paul is a former modeller for programmes like *Red Dwarf*, and he is also an accomplished photographer. This month he reveals how to create believable eyes

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Or post it on the Q&A section on our forum
www.3dartistonline.com/forum

A

B

C

D

02 3D fast Rasterizer motion blur

In mental ray, you can also select Rasterizer (Rapid Motion) as the primary renderer. This is a scanline renderer, which uses subpixel tessellation to decouple shading and surface sampling. This allows a single set of shading samples to be re-used as spatial samples. The advantage is a very quick render. The image in Step 2 only took 6.25 minutes to render. The disadvantage is that since a single set of samples are re-used, reflections and refractions also get blurred, though typically, this isn't a problem. This renderer does take advantage of all of mental ray's motion blur features, including segmented blurs D.

03 2D motion blur

You are also able to do a 2D motion blur in mental ray using one of its production shaders. This shader uses the data stored in the framebuffers to produce the desired motion blur as a post-process. The mip_motionblur shader must be connected to your camera as an output shader and the Color, Depth and Motion Vector framebuffers must be turned on. Also, in the Render settings, under the Motion Blur tab, the Shutter Open and Shutter Close parameters must both be set to 0.

E

F

G

Once the render is completed, the shader smears the pixels based on the motion vector data in the framebuffers.

This render took five minutes, which is almost as quick as the render without motion blur. However, since it's just smearing pixels, reflections and refractions also get blurred; and it's a straight-line blur, even if the movement is in an arc E F.

04 2D motion vector

Finally, mental ray allows you to export the motion data and create the motion blur in a compositing application like Toxik, Fusion, After Effects, etc. Again, you use a production shader for this – the mip_motion_vector shader – and it is connected as an output shader to your camera, exactly like the mip_motionblur shader. Once the render is completed, the motion vector data is added as a postproduction process.

The RGB colour data describes both the motion direction and magnitude. Different compositors require different types of data, which can be satisfied through the attributes available in this shader. Again, this was very fast, rendering at about the same speed as the 2D motion blur G.

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Poser

The eyes have it

“How can eyes in Poser be made to look more realistic?”

Ah – eyes, the windows to the soul, they say. Our own eyes are naturally drawn to someone else’s when we meet them, and similarly, when viewing a picture of a living creature, it is to the eyes that we naturally look for a clue as to mood, character and personality.

This is why, if you don’t bring your character’s eyes to life, they will look wooden and dull; this absent magic spark is a common fault with Poser renders. The two essential areas to concentrate on are the direction the eyes are looking and the surface of the eyes. If you fix both of these, your eyes will look more realistic straight away, as they will look more alive, and more like the wet organic tissue you are trying to simulate. You first of all need eyes that have a separate surface, which most figures do have nowadays, such as Victoria 4, which I am using here. In terms of a realistic material for the eye surface, there are two broad choices – to use the Shader Node system to generate a wet-look cornea, or to produce a custom 2D reflection map to suit the picture you are working on; in this example, I have chosen the latter route.

Look into my eyes

If you look at your own eyes, you’ll see that they reflect the environment you are currently in; an obvious fact, but one frequently overlooked in CG art. There’s not much point in having the reflection of a summer meadow in the eyes of a character battling aliens on a space freighter. So that’s the first task – to think about how the scene in which your character is placed would be reflected in their eyes. You don’t need to be too fanatical with detail, but it should be broadly correct and match the lighting.

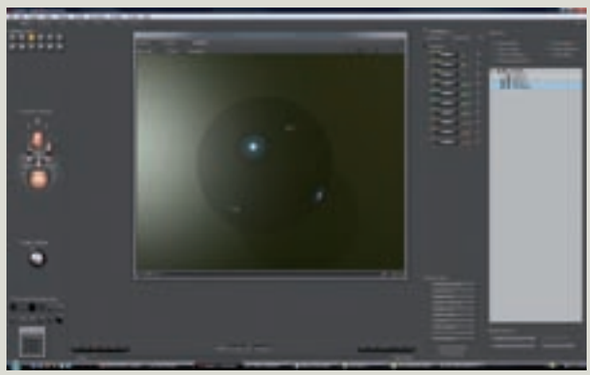
Reflection map

In Photoshop, I produced a greyscale 1024 x 1024 JPEG image to simulate the reflections for the eyes; I have included the obligatory window frame, which is actually behind the camera and invisible in the main picture, as well as a really important detail – the reflections of the character’s own eyelashes. In the screengrab, you can see the reflection map greatly enlarged, in addition to a close-up of how it looks in the final image. I also painted in some diffuse clouds to match the clouds of smoke and particle effects which I was going to add in the postprocessing stage.

Here you can see the reflection map, greatly enlarged, plus a close-up of how it looks when rendered

Putting it all together

In Poser’s Material Room, you need to identify the character’s eye surface; for Victoria 4, it’s helpfully labelled as just that, which makes selecting it easy. Clicking the Reflection tab allows you to browse for your custom reflection map and insert it into this channel. I have illustrated the reflection map here on a plain sphere for clarity. The next thing is to ensure the eyes are pointing at something meaningful, like the camera, an invisible prop or something else significant in the scene – you’d be amazed how many people forget to do this and just have their characters staring off blankly into space.



The reflection map applied to a primitive sphere for visibility

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3ds Max

Softly does it

"How can I create soft, plush fabrics for an interior scene like a bedroom?"

When creating an interior scene such as a bedroom, the materials of the soft objects can make all the difference between a hard-looking object and a soft, plush one. With this in mind, the curvature of the model itself, along with the lighting intensity/direction, hugely influences how the material reacts on your object and in your scene.

I use Arch & Design materials for most cases, and fabrics are no different. While looking at these material settings, keep in mind that you can attain a similar and faster result by checking the Highlights + FG Only box in the Reflection material properties. Checking this option resulted in almost a 33 per cent decrease in render time.

When creating fabric materials, I always check out www.mrmaterials.com. This website has proven extremely useful in both my mental ray material production and furthering my studies.

Once you test render your scene, you may notice a need for more curves and folds. The Soft Selection tool can be very useful for this task.

While finalising the rendering, whether for a client or for personal use, the Dodge tool in your favourite photo-editing application can help build a bit more shade into the curvature of the fabrics.

Materials

With plush materials, generally speaking, there is a sheen which produces the soft look. In most situations, this can be simulated by using a very high Reflectivity and extremely low Glossiness.

A Reflectivity value of 1.0 and a Glossiness value of .004 will give the impression of a soft sheen. A fabric-oriented Bump map will also aid in the impression. You can see the settings for the grey fabric material applied. In the Bump and Diffuse slots, a standard bitmap has been used. These settings can be adjusted and refined, and I recommend you test variations.

Modelling

When modelling soft objects, the most important part is representing the curvature – a hard-edged model will not indicate any plushness and the material will not be represented properly, no matter how great the material is.

You can use the Cloth Modifier to drape curtains or bedding. While modelling the objects, make sure to create them with enough subdivisions to clearly show the curvature. Soft objects generally involve high poly counts.

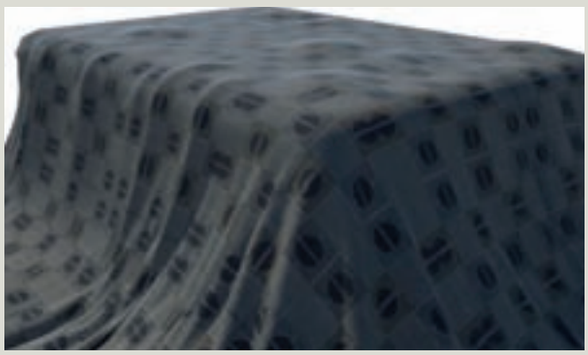
When using the Cloth Modifier, make sure that your Collision Object includes areas where you would like bumps, ridges and indents, as this will create less work later. Apply the Cloth Modifier to the object you wish to drape. Now go to Object Properties and add your drape object as Cloth and then your base object as the Collision Object.

Lighting

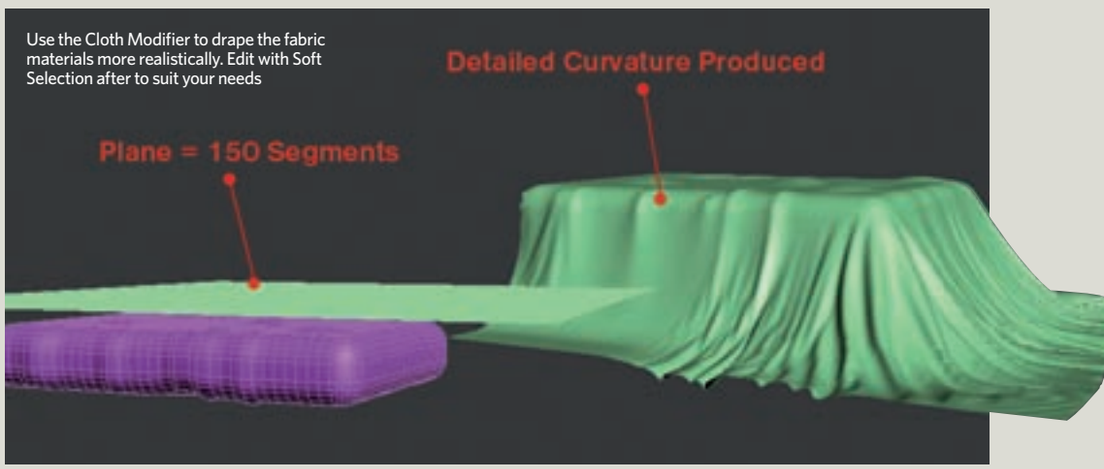
With interior scenes, when possible, I try to add two types of light. The first is sunlight/daylight. When there are windows present, the light can create angled, crossing patterns on the fabrics, which bring out the softness in any folds or curves that are present in the models.

Then I add down lights or area lights, which have a lower intensity. These act more as fill lights. If you are not limited to a certain lighting scenario, then try placing lights at angles to accentuate the curves of the plush models.

Playing with the lighting can produce some wonderful, diverse results on this type of material.



Rendered image. Lighting with mr Sun and mr Sky only to accentuate folds


Use the Cloth Modifier to drape the fabric materials more realistically. Edit with Soft Selection after to suit your needs
Detailed Curvature Produced
Plane = 150 Segments

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Welcome to the Q&A section where we answer all manner of technical questions on the most popular 3D programs such as Maya, 3ds Max, CINEMA 4D, Poser and Vue

On the Disc

There's a scene file and a video showing the raindrop tutorial in action.

qa16_06.c4d
raindrops.mov

CINEMA 4D

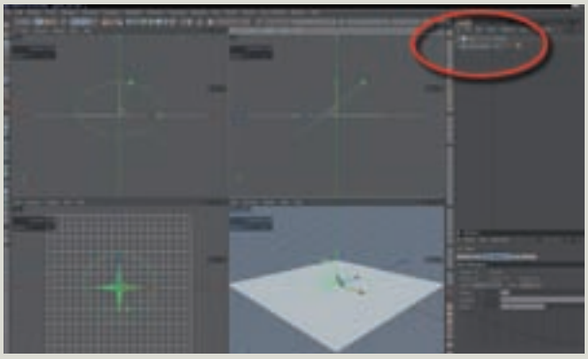
Let it rain

"How do I create animated raindrops?"

As is the case with many questions in the field of 3D graphics, there are many possible answers to this. Depending on how accurate you need the final result to be, you could use multiple transparent, equidistant surfaces, orthogonal to the Z-camera Z axis, with a material applied to them, which contains an animated drops texture in the Alpha channel. Or, on the other hand, if you need an extremely realistic result – for example, raindrops falling onto a surface and exploding into a series of smaller drops – you might opt for a more complicated path, involving CINEMA 4D's system of Thinking Particles and Xpresso.

Neither of these possible solutions will be considered in this tutorial, the former because it's too simple and the latter because it's too complex for the space available. We will settle for a happy medium solution, which is quite simple to set up, but still yields convincing results.

The method involves particles, but you won't have to use either the Thinking Particles system or Xpresso, just the ordinary, basic Particles setup. It will not generate secondary explosions when drops hit a surface, but it will generate ripples when hitting certain materials, just as real raindrops do when dropping onto a liquid surface. In the first step, we will prepare the scene and then model a single drop, which will suit our purpose. Next, the Particle Emitter parameters will be set up, after which we'll add the parameters for the particles themselves. In the fifth step, the procedure of creating ripples on the surface hit by the raindrops is explained, before finally, we'll make some minor tweaks and adjustments to get a more convincing result, prior to rendering the scene.



01 Preparing the scene

To create a watery surface for the raindrops to hit, add a Plane object to the scene (Main Menu>Objects>Primitive>Plane) and rename it Watersurface. Leave its parameters as they are and make it editable (Main Menu>Functions>Make Editable). Now add the Sky object and/or any additional lights that you might need in order to create a reasonably realistic lighting setup.

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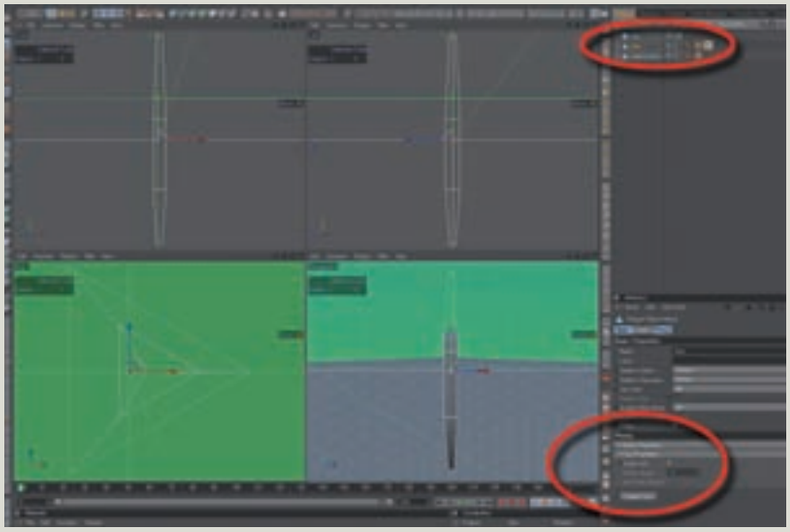
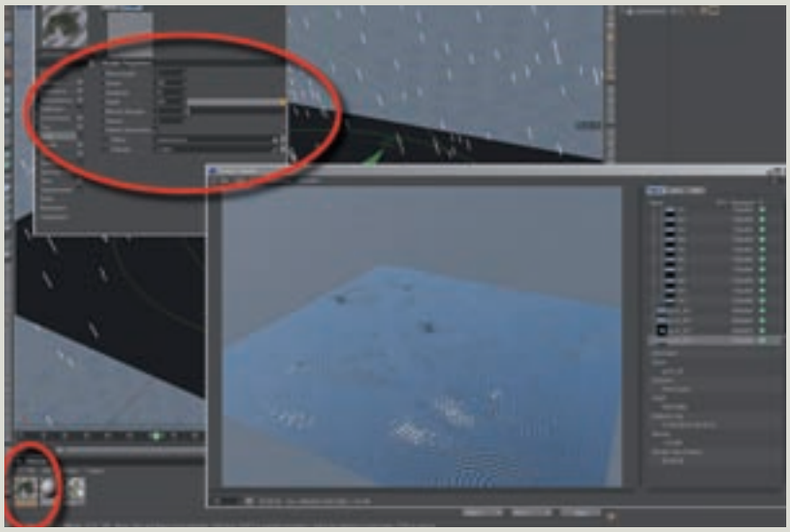


02 Creating the basic drop

A raindrop falling through the atmosphere has an elongated shape, slightly thicker in the lower middle. Add a cylindrical primitive (Main Menu>Objects>Primitive>Cylinder), set its Radius to 0.2, the Height to 5, both the Height and Rotation Segments to 3 and the Orientation to -Z. Make it editable, switch to Polygon Selection mode, select both caps only and reduce their size a bit. Then select the three middle polygons and lower them slightly. Apply a glass material.

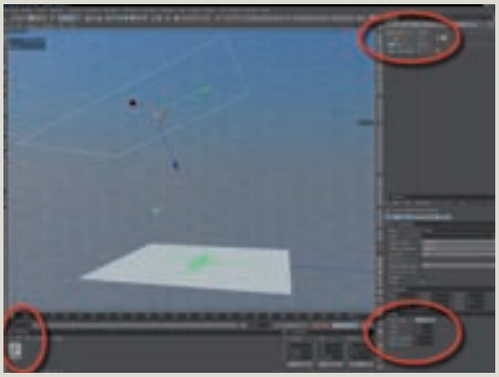


05 Water ripples setup

The easiest way to get water ripples is to use the Ripple shader. It generates parametric, animated, greyscale concentric circles wherever and whenever a particle hits a surface it is applied to. Create a new material and apply it to the Watersurface object. Set up all the usual parameters to make it look like water and then, in the Bump channel under the Texture field, select Effects>Ripple. Set the effect up as shown in the screengrab. Note, it won't show up in a Camera View render; flick to the Picture Viewer instead to see it!

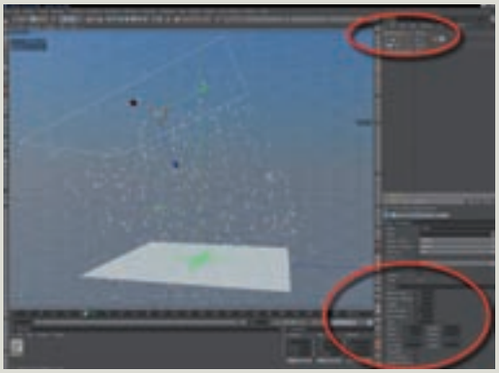
For more realistic water ripples

Some standard, traditional F-Stop values (1.4, 2.8, 5.6, 11, 22, etc) are usually displayed rounded to one or zero decimal places – for obvious, practical reasons, since they are actually multiples of the square root of 2 (= 1.4142135623731...) and thus have an infinite number of decimal places. The small differences you experience when comparing the calculated values with standard, pre-calculated DOF tables in photographers' handbooks are not the result of an error, but of your F-Stop value rounding off the F-Stop field! To get the mathematically correct values that would match the standard DOF tables, you should enter, for example '5.65685424949238' (four times the square root of 2) instead of '5.6' in the F-Stop field.



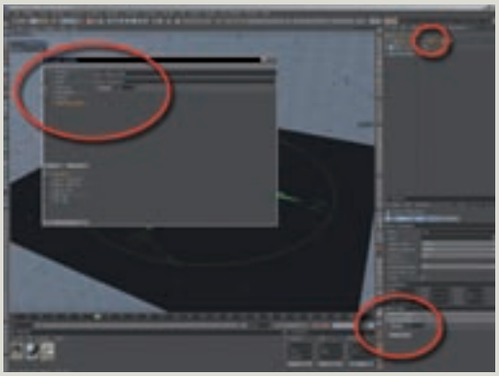
03 Emitter setup

The next thing we need is a particle emitter. Add one to the scene (Main Menu>Objects>Particle>Emitter). Position it some 250 or so units above the surface (created in Step 1) and rotate it about its X axis to a degree that creates a more natural direction (it rarely rains in a strictly vertical direction). In the Attribute Manager set Type to Pyramid, X and Y Sizes to 280, and both Angles to 0. Make the raindrop object its child.



04 Particle setup

Now click the Particle tab in the Emitter settings. Set both Birthrates to 250, leave the Visibility at 100, set Start Emission to 0 and Stop Emission to whatever time in frames you want the shower to last. Set the Lifetime to 45, the Speed to 150, the End Scale to 1 and make certain that the Tangential and the Show Object options are checked. If using CINEMA 4D 11.5 or later, you can also activate the Render Instances option at this stage.



06 Final adjustments and render

We are almost done! All that remains is to get a natural-looking shower by adding some motion blur to the raindrops as, in their present state, they look more like hailstones than raindrops. In the Object Manager, select the Drop object, right-click on it and select CINEMA 4D Tags>Motion Blur from the drop-down menu. In the Tag settings, check that the Strength is set to 100. In the Render settings, activate Object Motion Blur from the Effects menu.

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Creating clouds Vue

"How can I create custom design cloud patterns in the sky?"

The best way to create your own clouds is by using the MetaClouds tool. These are standalone clouds that can be resized and rotated. They are a good complement to cloud layers and are particularly useful when you need large, prominent clouds such as cumulonimbuses, or if you want to place a cloud at a precise location, without having to fiddle with the intricacies of procedural cloud layers.

To create a MetaCloud, either click on the MetaCloud icon in the left toolbar, or select the menu command Objects>Create>MetaCloud.

MetaClouds can only be created when you are using a Spectral atmosphere. Each time you create a new MetaCloud, it will be different from the previous one. In this sense, it is similar to using SolidGrowth plants and trees.

The rules that define the overall aspect of MetaClouds are gathered in MetaCloud model files. You can change the MetaCloud model by right-clicking on the MetaCloud icon to display the MetaCloud model visual browser. This browser displays all the available MetaCloud models. Simply select the model of your choice and press OK to create a new MetaCloud. A special type of volumetric material is assigned to the MetaCloud in order to capture the way genuine clouds interact with light and the atmosphere. The same material is assigned to all parts of the MetaCloud. You can add new primitives to a cloud by expanding the MetaCloud in the World browser and selecting a single part of the cloud. The MetaCloud icon will then change to the Add MetaCloud Primitive icon, and clicking this icon will add a new primitive, which you can place or resize as needed. You can delete MetaCloud primitives by selecting the primitives to be removed and hitting Delete.

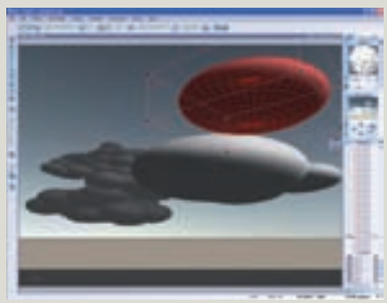
MetaClouds can be animated either globally or by selecting individual MetaCloud primitives. You can achieve incredible 'cloud morphing' effects this way.

01 Choosing a MetaCloud

First load a Spectral atmosphere. Next we need to select a MetaCloud model. Right-click the MetaCloud icon on the left-hand toolbar. From this selection choose one of the different cloud formations. Remember these clouds will vary every time you select them, as they act in the same way as SolidGrowth objects.

02 Editing cloud material

Once we have our chosen cloud model, right-click the cloud and choose Edit Materials. This will then display the Material Editor, where we can change the overall properties. Of course, experimentation is key here. To make the cloud look even more realistic, try turning down the Opacity setting and Ambient Lighting to between 30% and 40%. You can also adjust the general lighting and detail of the cloud here.



03 Cloud shapes

As well as changing the overall materials of the cloud, you can change its shape and structure. Because MetaClouds are made up of spheres, these can be individually selected and rotated or resized. So endless varieties of shapes are possible. It is also worth combining different MetaCloud models for more interesting, complex results.

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Back to basics

3D artist Rob Redman looks at the basics of character texturing in CINEMA 4D

A

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Texturing a model

CINEMA 4D

> Adding materials to a model can be the deal-breaker when it comes to applying that impressive finished, polished look to your CINEMA 4D projects, but it doesn't have to be complex

So you've built a character model but it looks drab and grey. In this, the first in a two-part feature, we will look at some of the ways you can give your design some colour and shine. Adding materials to a model can be the deal-breaker when it comes to giving that finished, polished look, but it doesn't have to be complex. In this article, we will look at selection tags, layering and the Texture tool. In issue 18 we will delve further, learning how to UV map your model, something that many find intimidating.

Starting the process

In this two-part feature, we are going to investigate some of the ways you can add materials and textures to your models. As much as it can be useful and interesting to see a flat, grey clay render, it is almost always the case that colour, reflection and bump, etc, will need to be added.

The very first thing to remember with this subject is the difference between a texture and a material.

A material is the overall collection of attributes, which is applied to give a certain appearance to your objects, for example, an overall chrome or rock look.

A texture, on the other hand, is an individual image used to drive various components of the material. These textures will often be photographs or something created in an image editor – for instance, a brick wall. For a brick wall, you might have a number of textures which make up the material. Most commonly, these will be a colour image and a bump image or a specular (although there are many others).

Then there are shaders. Shaders tend to have a very specific purpose. CINEMA 4D has a large assortment, from gradients and star maps to Fresnel and Noise. Some produce simple procedural such as the Noise shader, while others are used to add an effect. An example of this would be the Fresnel shader, which uses incidence angle to control where the colours in a gradient will fall, or more commonly, to add more realistic reflections.

Shaders can be very powerful tools for building materials and we will look at some of them in the step-by-step section.

Let's say you have a model and have created a nice, shiny paint material for it. What if you want it to look aged or dirty? You could create a UV map for the object and hand-paint the dirt onto the various maps, but there are other ways.

If the area you want dirty has a regular-shaped boundary, you could use polygon selections. This means that, even though the model may be in one piece, you can select a number of polygons and apply a different material to it. But this doesn't provide you with a natural or organic look.

To create something more realistic, you can use layering. Similar to how this would be done in Photoshop, you can add materials or textures to each other and define how much of the underlying layer is visible and where.

It is very easy to build complex materials in this way and the in-built shaders can help hugely. For adding dirt and grime, the Noise shader is invaluable.

For more precise placement of your texture, you will need to create a UV map, but we will cover this next issue.

For the step-by-step, we will use the mannequin that comes supplied with CINEMA 4D. This is a nice, clean, simple model, which gives us a few areas to try out various tools.

We separated the sections to make life easier. There are a few ways to do this, one being, in Polygon mode, select a section and Cut>Paste it. This will actually duplicate the whole model, but you just need to delete the rest. Repeat this until you have all the sections as individual parts. You can also group these under a Null (select all parts and hit Alt+G) to keep the scene tidy.

Next, build a little studio setup, with a three-point light rig and Global Illumination turned on. This will help you with test renders and give something to show in reflections.

Begin by giving the factory model fresh materials, then proceed to apply a decal to a specific area, and finally, dirty him up a bit. This will allow us to explore a number of the tools which we have at our disposal and should give us a good starting point for texturing more complex models.

Don't forget that in issue 18 we will UV map a model. You can still use the tools which feature here with a UV-mapped model, as the different methods aren't exclusive. They both have benefits and pitfalls. UV mapping is a more accurate way of placing textures but takes much longer to set up and generally requires more work before it looks great. The tools we use here, in contrast, are faster and easier to control, at the expense of complete accuracy.

A The built-in mannequin with a few textures added to give it a bit of personality

B The built-in mannequin stripped to its clay form

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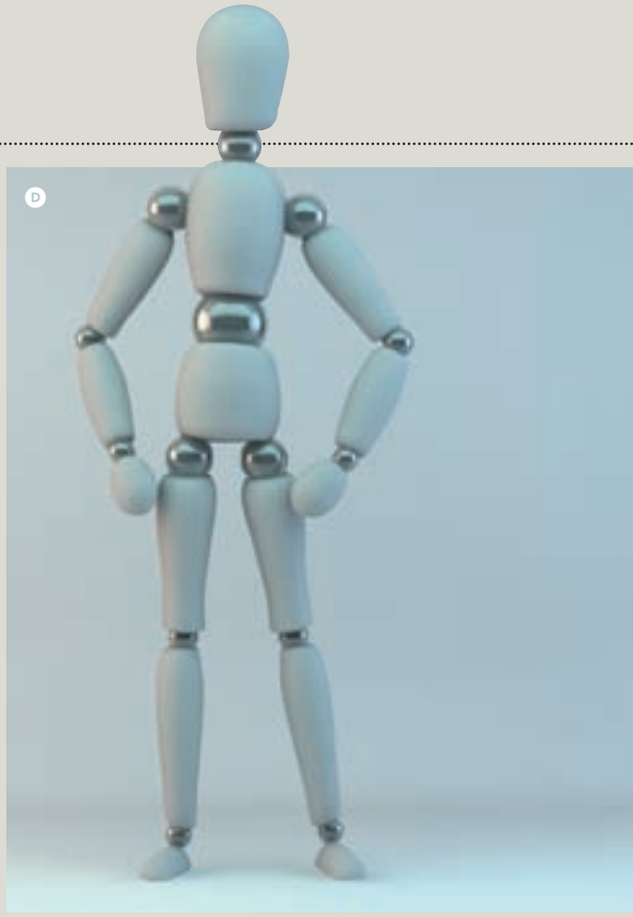
3DArtist Back to basics



C Preparing the 'studio' scene for adding materials

D The brushed metal material when applied to the joints

E As demonstrated, by default, the projection's all wrong and the wood is badly stretched as a result

F Here you can see the cylindrical Texture tool and the resulting render – a mighty improvement

G We now have the base materials all in place. Time to get dirty!

Texturing the mannequin

01 Setting the scene

Firstly, familiarise yourself with the scene. You will find that there are three lights, a studio cyc (backdrop), a camera and the mannequin model itself. To have a better look around in Perspective view, look to the right of the camera in the Object Manager. In the next column are three dots and a Link Camera to View button. If you uncheck this, you can move around the scene without moving the camera. Very useful for setting up a scene C.

02 Add metal to joints

The first material is the simplest. In the Texture Manager, you will find a brushed metal style material. (We won't be going into creating custom materials here; hopefully you have seen the article on materials and channels in issue 14.) Open up the hierarchy for 'MAN-E' and drag and drop the metal material onto the joints. Projection is fine on its default UVW, so the first step is complete. Feel free to render and check it out D.

03 Apply a wood material

We'll now apply a material to the other sections. We'll use a wood material as it won't look right with default projection. Start by dropping it onto the head. You may want to move in for a closer look here. When you render, you may not see what you expect. The wood is stretched and doesn't look very wood-like. If you select the texture tag for the head and move to the Attribute Manager, we will fix this. In the Projection menu, choose Cubic. This will help a lot but we can improve things further still E.

04 Begin to texture

With the head selected, choose the Texture tool (the third icon up on the left-side menu). This will bring up a yellow cage in the main view. You can use the normal Move, Scale and Rotate tools to manipulate it. The cube represents the projection of the texture and makes it much easier to fit the material to the object. Adjust the cube until you are happy that the material is where you would like it. You can also try out other projections. Cylindrical may be more suitable for this model F.

Texture tags

When textures are applied to an object, a tag is created next to it in the Object Manager. If you select the tag, the attributes become available in the Attribute Manager. These options can be very powerful, but remember they are not just for textures. All sorts of tags can be added for many reasons. For example, a simple Protection tag lets you work freely in your scene without accidentally making any changes to objects with the tag. Look through the Tag menu (right-click an object) and see what's available.

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UV mapping

In issue 18, we're going to look at UV mapping, which will allow us to paint very specific materials, with a lot more complexity. Many people think of UV mapping as an arcane art, which is difficult to learn and time-consuming to do, but that doesn't have to be the case. Using a few simple tools, it is fairly easy to set up your UV maps and CINEMA 4D comes with the excellent Bodypaint module, which we will use to refine the map and start painting textures.

05 Hide the seams

Using the same techniques, we can now move on to apply the wood material to the other sections. Choose a projection mode that looks good to you and then use the Texture tool to move the texture into position. We will have a seam using the Cylindrical projection, but by using the Texture tool, we can hide this out of view. Next issue, we'll look at how to easily cover up seams but, for now, out of sight, out of mind G.

06 Get dirty!

Now it's time to add some dirt and grime on his legs. Take a look at the grime material and how it is put together. Notice there is an Alpha channel. This controls where this material will be visible and to what intensity. Try using a combination of Noise and Gradient to create a more natural transition. Black areas of the Alpha will be hidden and white will be visible. Drag this onto the object and place the texture where you want it. Render the image and you'll see a dirty leg H.

07 Hone the grime

Use the same tools to apply the grime/dirt to the ankle and foot, though use a Spherical projection on the ankle. You can see how useful this method can be. Imagine how easy it would be to add flames to the front of a hot rod. It's also worth remembering that materials can be added, which makes it easy to create things like LED lights which blink. You can learn about animating materials at www.pariahstudios.co.uk, where there are lots of video tutorials I.

08 Heat things up

Now it's worth adding something a little more specific and showing how this method can be applied to displacement as well. We'll use the flame idea and add some depth to it. In the Color channel, choose Fire and set the colours you want. Then choose Texture>Copy Channel and paste it to the Alpha and Displacement channels. You may want to activate Sub Poly Displacement to make results a touch smoother. Apply the material to the body, choose Flat as the projection method and move with the Texture tool J.

09 Deepen the burn

It's a start, but the flames look a bit stuck on. Let's combine the Color channel with a Circular Alpha, controlling the displacement to make the flame badge indented and create the shape. Make a Radial gradient with a sharp transition for this step to help it look much more part of the model. The circular displacement will create geometry without us having to model anything, saving us a lot of time and effort K.

10 Time to experiment

This final step is where you can develop your ideas and go to town. Use the tools you've learned to add images, shaders and any other details to the model. Try things like adding an Ambient Occlusion shader to the Alpha channel, which will place the texture in recesses, maybe where rust would collect or an area that's harder to keep clean. The possibilities are endless and we urge you to experiment. Don't forget you can use photos or any other images in materials. This opens up a whole new treasure chest of options to try out L.

H Blue grime makes for easier viewing in screenshots

I Both legs now have the grime effect nicely placed

J The flames are now projected onto the chest

K Flames are now complete and look much more believable

L Finished model with all the textures in place

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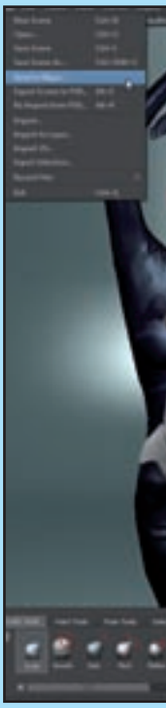
The easy-to-use interface paralleled with real-time rendering will have you sculpting and painting models for games and movies (Image: *Athena* by Ara Kermanikian)



Mudbox 2011 £700

Ara Kermanikian checks out the new features that enable artists to sculpt and paint high-definition digital characters, props and sets

Hot on the heels of last summer's Mudbox 2010 release, Autodesk launches the fourth edition of Mudbox to coincide with the 2011 versions of its other major media and entertainment products, including: Maya, 3ds Max, Softimage and MotionBuilder. This latest version adds a host of new and innovative features to Mudbox's proven capability of sculpting multimillion-polygon 3D models of characters, props and digital sets, and painting them with high-resolution textures. The new features include the much-needed ability to pose and deform models, a tighter integration with Maya and Photoshop, and the ability to extract and use vector displacements.

Existing Mudbox users will immediately notice a darker overall appearance to the interface, aligned with some of the other products in this Autodesk release cycle, which reduces eyestrain and gives features a more consistent look throughout the product line. Also immediately visible is the Mudbox Community tab that directly connects to the Autodesk AREA community website (http://area.autodesk.com), where you can download or share base meshes, stamps and stencils. You can also view tutorial movies and galleries of other users' work. The seamless integration of a communal online resource library within the application's interface is a welcome trend that could potentially foster a strong and vibrant Mudbox community.

The new Posing toolset, which allows you to create compelling presentations of your models, is designed with the same focus on ease of use that has been pervasive in Mudbox since its debut. You can now pose your models in two easy steps; first using the Create Joint tool to add a pivot and drawing out a vector to indicate the area of influence, and second, using the Pose tool to rotate, translate and scale that area of influence. The capability to simply Weight Paint the area you want to influence, while posing, is extremely innovative because, in addition to the model you are working on, you can now paint weights on multiple disconnected meshes in your scene affected by the pose. An example would be posing a head with separate meshes for eyeballs, or a character with separate pieces of armour and accessories.

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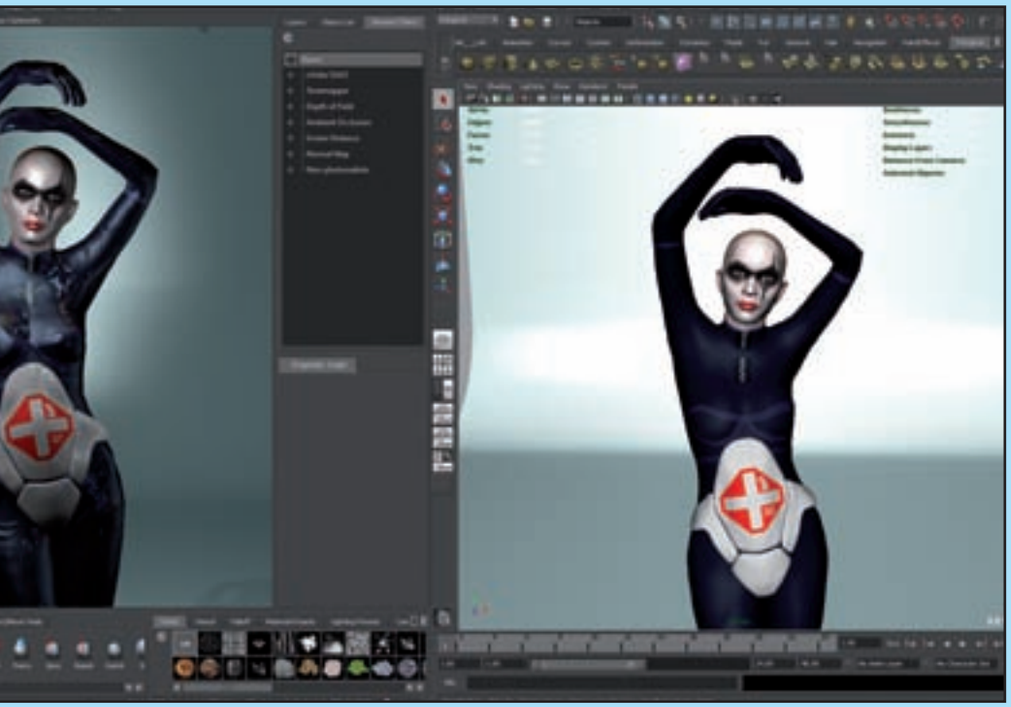

The consistent interface and tighter integration with Maya makes taking assets from one application to another a single-click affair

If you do your rigging and painting in Maya, 3ds Max or Softimage, you can now use the FBX file format to import weighted skeletons and pose your model in Mudbox.

Another brilliant and time-saving innovation in Mudbox 2011 is the ability to use Vector Displacement Maps (VDMs), which allow you to extract not only surface height information, as you were able to with Displacement maps, but also directional information. This enables you to recreate shapes that have overhangs and undercuts. These VDMs can also be used as stencils with Sculpting tools to replicate precise geometry on a new surface. This is very useful for building libraries of extracted shapes such as ears or complex mechanical surface details that you can apply to any model.

Additional interoperability with Maya 2011 allows you to send models (along with all components that are transferable) through FBX, back and forth between the two applications with a single command.

The Paint toolset has been augmented with eight new image adjustment tools including Blur, Dodge/Burn, Contrast and Hue. If you still need the image capabilities in Photoshop, you are now able to import and export Paint channels containing multiple paint layers to and from Photoshop.

Paint layers have been enhanced with the addition of blend modes such as Multiply, Add, Overlay and Screen. In addition to being able to paint texture maps on your model in 3D, you are now able to paint them in 2D in UV Space.

There are also two new movie recording features, which allow you to record your actions within the user interface for instructional purposes, or output a 360-degree turntable animation of your model.

Being built on 3D industry standards like OpenGL – and being available in 64-bit versions for Windows and Mac OS X 10.6.2 – enables artists to work with digital sculptures that can comfortably scale up to tens of millions of polygons and not be restricted to limitations of proprietary 3D engines and the 4GB limit of 32-bit operating systems. That said, you will need a very capable system with more than 4GB of memory and a high-end, certified 3D graphics card like an NVIDIA Quadro or AMD FirePro/FireGL to comfortably manipulate this scale of geometry.

Make sure that you check the Autodesk Mudbox 2011 Hardware Certification Compatibility list on the Autodesk website to see if your graphics card is supported.

The current release of ZBrush 3.5, with its ability to create geometry with ZSpheres and ZSketching, Planar hard-surface brushes, surface noise generation capabilities, mesh extraction and many other exclusive features, is a formidable competitor to Mudbox.

With the new capabilities introduced in Mudbox 2011, the gap is growing narrower, but the exclusive yet indispensable feature set of each of these product still warrants the inclusion of both in any respectable visual effects pipeline.

The good & the bad

- ✓ Ease of use
- ✓ Powerful 3D painting on multiple layers with blend modes
- ✓ Workflow interoperability with Photoshop, 3ds Max, Maya and Softimage
- ✗ Lack of base mesh creation capabilities
- ✗ Limited Sculpting toolset – specifically hard-surface sculpting tools
- ✗ Price of subscription and upgrades

Essential info

www.autodesk.com
- £700 (£350 Upgrade)
- $745 ($375 Upgrade)
- €825 (€425 Upgrade)

OPERATING SYSTEMS
- Windows 7 Pro, Vista Business, XP Pro
- Mac OS X 10.6.2

OPTIMAL SYSTEM REQUIREMENTS (PC)
- 2GB RAM
- 2GB hard disk space
- OpenGL graphics card

The Posing tools in Mudbox 2011 allow you to tell a story with your characters

Our verdict

Features	9/10
Ease of use	10/10
Quality of results	10/10
Value for money	8/10

"The new Posing toolset and tighter integration with other programs are just two of many great features"

Final Score 9/10

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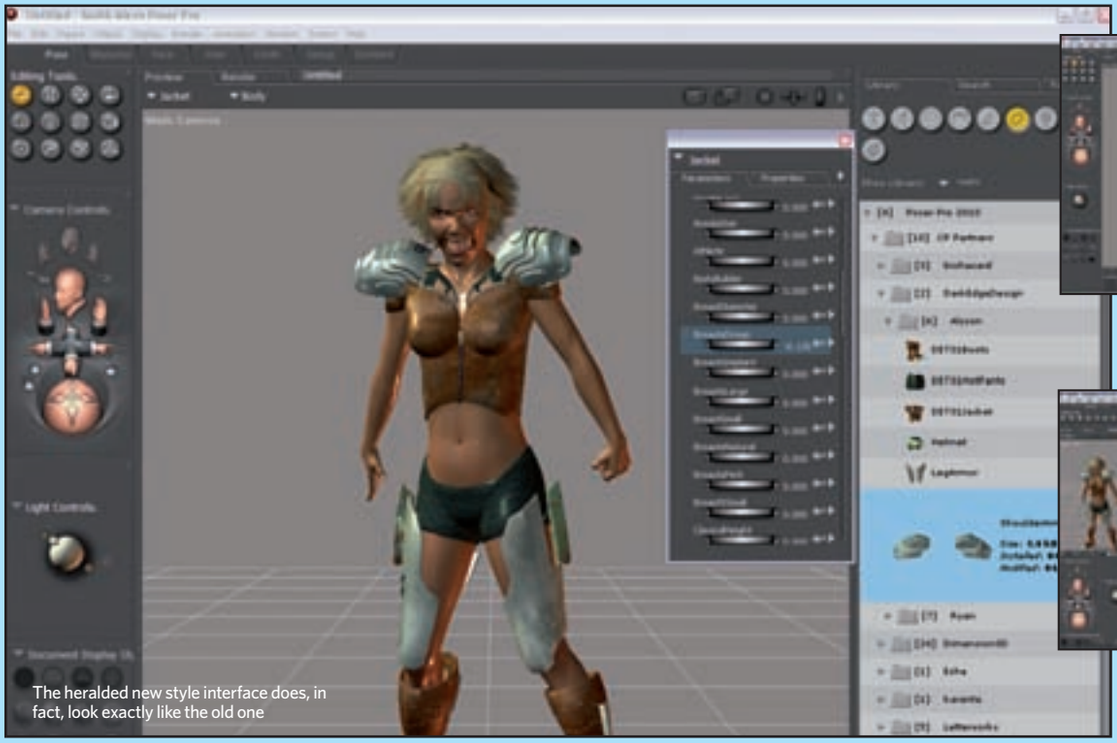
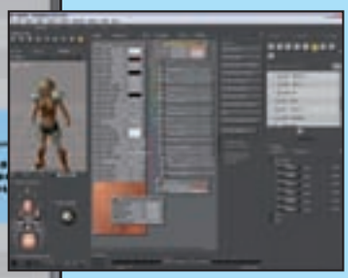
Poser Pro 2010 $499

Duncan Evans takes a look at the latest version of the artist-friendly 3D creation tool



The heralded new style interface does, in fact, look exactly like the old one

Content management is thankfully well organised and more coherent than that in DAZ Studio



Beneath the click-and-play approach there is significant technical detail

While the consumer version has now reached version 8, last year's sudden offspring, Poser Pro has switched to a date-based release with this 2010 iteration. It comes with up to 4GB of content, but – it has to be said – half of this is Poser 8 material and a good percentage of the rest is legacy material from older versions. Actual new content with this version is quite sparse, so don't make that your reason for upgrading. The eight new figures for example that are promoted, were actually released with Poser 8 as well.

However, there are a number of new features, starting with a redesigned interface. You might, though, be scratching your head over this since it looks exactly the same as Poser 8. The Content library is much better organised than the equivalent on DAZ Studio and the individual parts of the interface can be undocked and moved around as floating palettes. Multiple views can be used on the Library palette to make it work the best way for you. There's online searching for content available as well.

Most of the enhancements on last year's Poser Pro were actually implemented in Poser 8, so the totally new stuff tends to be under the bonnet. There's a joint strength indicator, multi-thread bending, PSD layer rendering, improved Render palette and, importantly for speeding up rendering, fully 64-bit Windows and Mac support. The new export features such as Facebook Image Export and Stuffit Connect Image Export are of dubious worth.

For anyone coming to the program from scratch, the basic models and, more importantly, the textures for them, still lag behind those that DAZ is putting out with Studio, but Poser is capable of significantly more sophisticated texture and cloth manipulation. This also extends to the lighting setup, which uses the same basic three-point setup as all the recent versions. The options available to use with the lights are quite advanced, allowing for Ambient Occlusion and Atmospheric Strength, with a choice of the default shadow mapping for speed or raytracing for accuracy. However, actually positioning the lights when constructing a complex scene is much less accurate with the default options, so you'll need to delete them and set up your own. This can be slow and frustrating.

The interface is also sluggish on a decent spec consumer PC, so you will need to have a fast graphics card to create anything complex. In summary, while the Pro version gets a 2010 label, it's fundamentally Poser 8 Pro, rather than being a huge step forward for the program.

> "The Content library is much better organised than the equivalent on DAZ Studio"

www.smithmicro.com

Our verdict

Features	**8/10**
Ease of use	**7/10**
Quality of results	**7/10**
Value for money	**6/10**

> "A slight advance on Poser 8, rather than a significant new release"

Final Score 7/10

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Movie Edit Pro 16 Plus £69.99

Edit like a pro with this video-editing software

While specific compositing software like Nuke and After Effects are generally favoured by those dealing with video and CG, there's still a place for more general video-editing software such as Premiere, especially if the effects are more subtle. Premiere has a junior version with the tag of Elements and that's pretty much the market at which Movie Edit Pro 16 is aiming.

To start with, it offers 99 separate audio and video tracks on a timeline interface with a live preview function to show the transitions and editing at work. It offers over 1,500 effects plus keyframe editing and – heads up, CG people – Chroma keying with the alpha channel. So, compositing your live people into CG scenes is easy as you just shoot against a blue or green screen and then replace that with the CG footage. Doing it the other way round – comping CG elements onto the live footage – is far more hit and miss as there are no controls for tracking such elements.

If you're doing anything beyond background removal, simple compositing or matte painting work with a static camera, you're better off looking at a more specialised package. Otherwise, this is an easy-to-use and powerful video editor, with good audio editing, colour correction which can output as either standalone files or onto DVD and Blu-ray.

www.magix.com

Our verdict

Features	7/10
Ease of use	8/10
Quality of results	7/10
Value for money	8/10

"Fun for video editing with loads of effects including Chroma keying"

Final Score 8/10

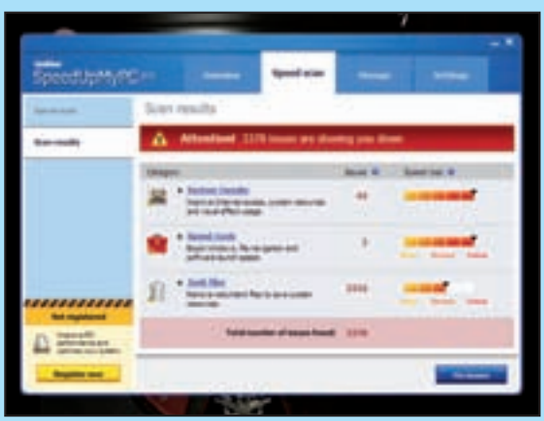
SpeedUpMyPC 2010 £19.95

Slow, flabby PC? Clean out redundant files and stop wasteful process to make it run rather than walk

It's a fact of computer life that the longer you own it, the slower it gets. This isn't because it gets older and finds it harder to keep up, but because there are more and more system files to be loaded, more processes to run, more programs in the menus, etc. The trouble is, when uninstalling programs, junk files often get left behind and operating systems are so complex, you can end up with processes running that are completely unnecessary. That's where SpeedUpMyPC 2010 comes in, offering to strip out the junk and make it move once more.

The first task is to run the system scan to find the problems and, sure enough, my office PC had 43 system issues, a couple of program launch fixes and over 3,000 junk files. One click then starts the process of cleaning it all up. Very simple, though once clicked the program is very unresponsive until the task is finished. Once cleaned, it maintains a presence on the toolbar so that it can do three jobs. Firstly, monitor CPU use so that runaway processes are not allowed to use all your PC's power. Obviously when rendering, you'll want to turn this option off. Second, there's a self-styled proactive thumbnail creator that generates them in windows before you scroll to them so that they display immediately. Lastly, it speeds up application launch from the Start menu.

None of this is actually vital until such time as your PC grinds to a halt. At that point, however, rather than re-installing Windows, you should take a look at this program to unblock the bottlenecks.



www.uniblue.com

Our verdict

Features	7/10
Ease of use	9/10
Quality of results	7/10
Value for money	7/10

"Quite effective, but not essential until your PC has ground to a halt and become unusable"

Final Score 7/10

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Cosmic Motors $46.95

Spaceships, cars and pilots of another galaxy

AUTHOR
- Daniel Simon. Foreword by Syd Mead

PRICE
- Paperback: $39.95
- Hardcover: $46.95

PUBLISHER
- Design Studio Press

ISBN NUMBER
- 978-1-933492-27-8
- 978-1-933492-28-5

info

When Daniel Simon, vehicle concept designer for blockbuster movies such as *TRON Legacy* and *The First Avenger: Captain America*, was approached by Design Studio Press to author a book of his work, the decision came fast.

Here we have the result of seven years' work, two of which were dedicated full-time to the book. With 176 pages hosting over 300 photos and illustrations with artist commentary throughout, *Cosmic Motors* is a timeless showcase split into several chapters, each one devoted to the conception and realisation of a vehicle for a futuristic, faraway galaxy of Simon's imagination.

The Galaxion universe, described in the book through a series of vehicles conceived for plausible existence in a parallel galaxy, is culturally very similar to Earth: inhabitants have a need for speed, love the thrill of competition and have a fixation with beauty. The environment is fully considered in all concept vehicle designs detailed and published. Those looking to pursue a career in imaginative design and illustration will particularly benefit from Simon's detailed workflow.

Each chapter shows the process of creation behind an exceptional vehicle, from concept to 3D to final photoreal render. Having worked on futuristic concepts for Bugatti and Lamborghini, Simon uses his design sensibilities, effectively applying them to entertainment design.

Creating everything from scratch – interiors, logos, graphics, environments, names, figures, background story – every vehicle in the book is as photoreal as it could possibly be. To achieve such brilliance, his workflow merges two disciplines: classical drawing and digital technology. With each design having started from a blank sheet of paper, we are taken through the entire process, from pencil drawing and polished Photoshop concept to the 3D modelling (using Autodesk AliasStudio) and final hyperreal illustrations. A true master of his trade, Simon's book is filled with the highest quality concepts, 3D renders and photorealistic illustrations.

Cosmic Motors is a must-have tome for any serious artist's collection. Likewise, car fans, designers – anyone who has a passion for motor sports, transport design or photography – will lose themselves within this wonderful world and will come away both inspired and motivated. Besides, what book with a foreword by world-renowned futurist Syd Mead openly endorsing it, wouldn't be worth the 40-50 dollars?

NEVER-BEFORE-SEEN VEHICLES
Simon describes the process behind many vehicles, eg this brand new spaceship

STEP-BY-STEP PROCESS
From concept sketches to 3D renders, all images are of the highest quality

THE MIND BEHIND THE MAGIC
Study the author's conceptual process to create your own designs like a pro

BE INSPIRED
Simon also reveals the various forms of inspiration which feed his work

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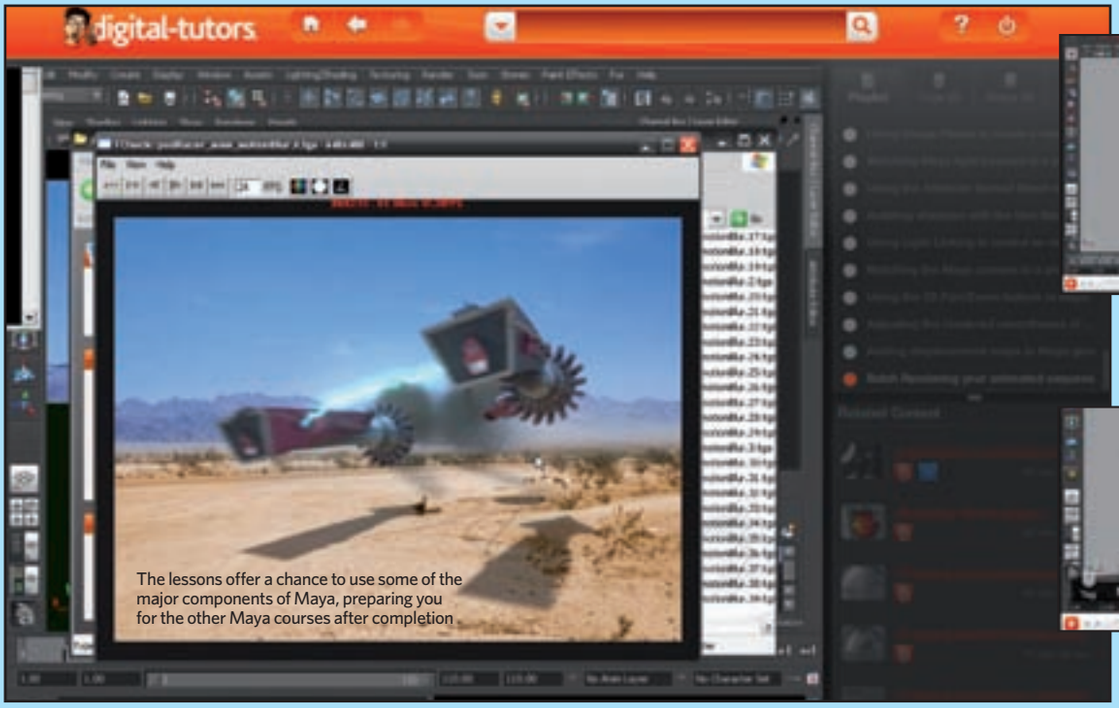
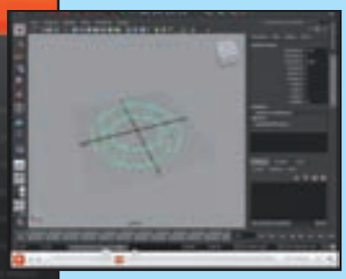
Introduction to Maya 2011 $45+

Project-based online training from the award-winning Digital-Tutors



The lessons offer a chance to use some of the major components of Maya, preparing you for the other Maya courses after completion



The course starts with the vocational skills and vocabulary needed to navigate Maya

Assign Notes to a specific point on the timeline, just like taking notes in the classroom

Developed by a team of experienced educators and industry pros, Digital-Tutors' training library is an excellent resource for artists, hobbyists and professionals. A collection of over 10,000 video lessons is offered to members under one of the auto-renew subscription plans: annual, semi-annual, basic or multi-user. With the courses streamed online, once subscribed you will have anytime, anywhere access – provided you have broadband internet and the latest version of Flash.

With the library catalogued by software, covering everything from 3ds Max, ZBrush and Photoshop to Nuke and mental ray, Maya alone has over 3,000 lessons. Introduction to Maya 2011 is a series of 86 lessons – over 11 hours of tuition – that aims to provide a strong understanding of Maya. Taught step-by-step, each lesson is approximately a digestable seven minutes long. Led by a series of tutors, all speaking clearly and concisely, we're getting specialist tuition on each subject.

In the first lesson, we create our very first object in Maya, while familiarising ourselves with the tools, interface and technical 3D terms. Building a podracer throughout the course, we cover modelling from scratch, moving on to texturing, rigging and animating, dynamics, and finally, lighting and rendering to complete the project.

Screen size is adequate; we can see the Maya interface, icons and tools clearly throughout. We also have the option to expand the movies to full screen, but this does of course reduce the crispness. The great thing about this form of video training, however, is that it's interactive.

Sure, we can pause and scroll just like any other video, but we can also Tag, Note and Clip the movies – unique features to Digital-Tutors. Simply click on the Timeline Indicator and the three easy-to-use options will appear. Tag is ideal for marking points for reference, a Note will allow us to add comments such as shortcuts, and Clip enables us to capture a section of footage that will be useful in the future. Easy to add, use and remove, they appear on the timeline as well as in tabs on our training screen for easy access – just one click takes us to the point in the movie we marked for reference.

We complete the course with our very own final model in a scene with realistic lighting and effects that can be rendered as an animated sequence as the finishing touch. By this point, we are now – in theory – in good stead to tackle thousands of other Maya courses available on Digital-Tutors. With accompanying project files and our library of Tags, Notes and Clips, we find Digital-Tutors a great companion on the road to mastering Maya.

> "Use the free trial to test bandwidth, preview actual training lessons and try out all the features"

www.digitaltutors.com

Our verdict

Features	7/10
Ease of use	7/10
Quality of training	9/10
Value for money	9/10

> "Interactive features make this training a helpful aid when getting to grips with Maya 2011"

Final Score 9/10

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Learn in style

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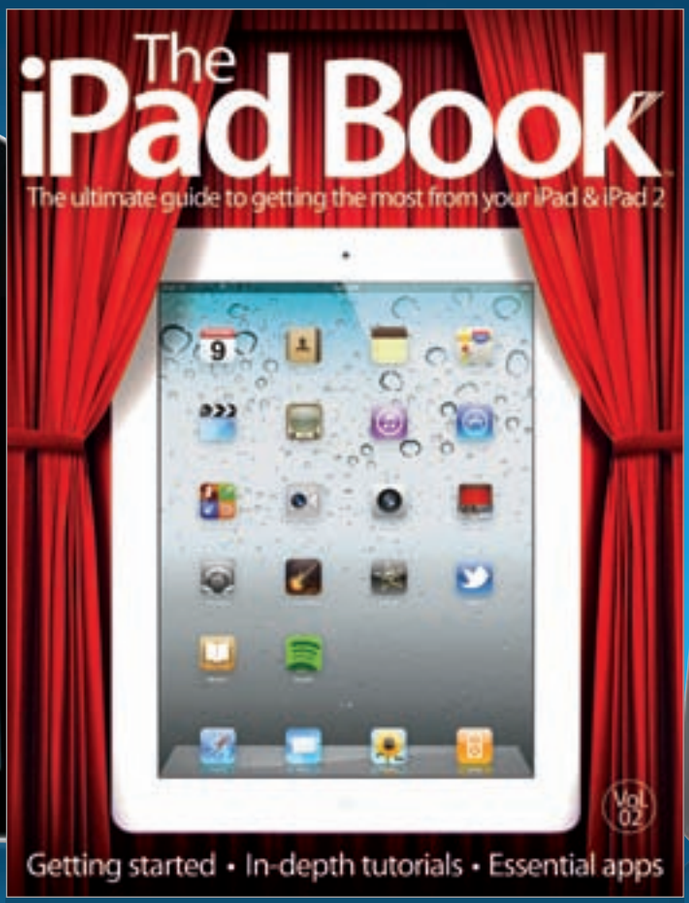
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inside

> "Practical stunts can be unpredictable, and the best takes were typically the ones where a part of the car broke off and smacked the driver in the head"

Katherine Roberts, co-CG supervisor on *Iron Man 2* at Double Negative on the challenges involved with the film. Page 100

Iron Man 2
Courtesy of Marvel Inc and Paramount Pictures
Website http://ironmanmovie.marvel.com

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Unveiling the Adobe Creative Suite 5 family

Industry-leading design and development software CS5 is here to solve today's creative workflow challenges

A CS5 tools are designed to work together to improve user performance

Creative Suite 5 has arrived. Adobe has launched the latest release of Creative Suite tools, featuring exciting new features that offer better workflow solutions for artists working with Photoshop, Premiere Pro and After Effects.

The CS5 product family is a breakthrough for almost every creative workflow. Offering full-version upgrades and significant workflow enhancements, Adobe's flagship creative tools come in several CS5 packages: the Master Collection, Design Premium, Web Premium, Production Premium and Design Standard.

Headlining the bill is the Master Collection. This package boasts more than 250 new features and includes all the Creative Suite 5 tools, such as Photoshop, Illustrator, InDesign, Flash Professional, Premiere Pro, After Effects, as well as a new addition to the line-up, Adobe Flash Catalyst. These tools are also available separately, but together work to dramatically improve user performance.

Photoshop, Premiere Pro and After Effects are all now native 64-bit applications on both Mac and Windows, making work with high-resolution projects much smoother. Among Photoshop's enhancements for image creation and editing comes Refine Edge, offering better and quicker edge detection technology and masking results. Photoshop also now includes the ability to remove elements from photos and immediately replace the missing pixels with Content-Aware Fill – a time-saving godsend. In Premiere Pro, the highly anticipated NVIDIA GPU-accelerated Adobe Mercury Playback Engine now allows users to open their projects faster, refine effects-rich HD sequences in real-time, and play back complex work without needing to render. And After Effects doesn't fall short of great new features either, with its highlight being the revolutionary Roto Brush tool, designed to save time and help artists isolate moving foreground elements in a fraction of the time it would normally take.

The Extended version of Photoshop CS5 also incorporates additional tools for editing 3D content. With new technology, users are now able to easily make 3D artwork from any text layer, shape or mask, as well as twist, rotate and extrude designs for a variety of effects. Couple this with a new Materials library and the new Shadow Catcher, and users can quickly enhance the realism and appearance of 3D elements in their Photoshop projects.

"With Photoshop CS5 Extended, Adobe gives filmmakers new painting, HDR and 3D tools that will help them push the limits of creativity," Jon Landau, producer of *Avatar*, has said. "Faster performance with cross-platform 64-bit support and tight integration with other Adobe Creative Suite 5 software makes Photoshop CS5 an even more powerful tool in a filmmaker's arsenal."

> "The CS5 product family is a breakthrough for almost every creative workflow"

How much?

Estimated street price for CS5 (exclusive of VAT)

CS5 Master Collection £2,303
CS5 Design Premium £1,509
CS5 Web Premium £1,429
CS5 Production Premium £1,509
CS5 Design Standard £1,032

Upgrade pricing and volume licensing are also available.
For more detailed information visit **www.adobe.com/uk/products/creativesuite**

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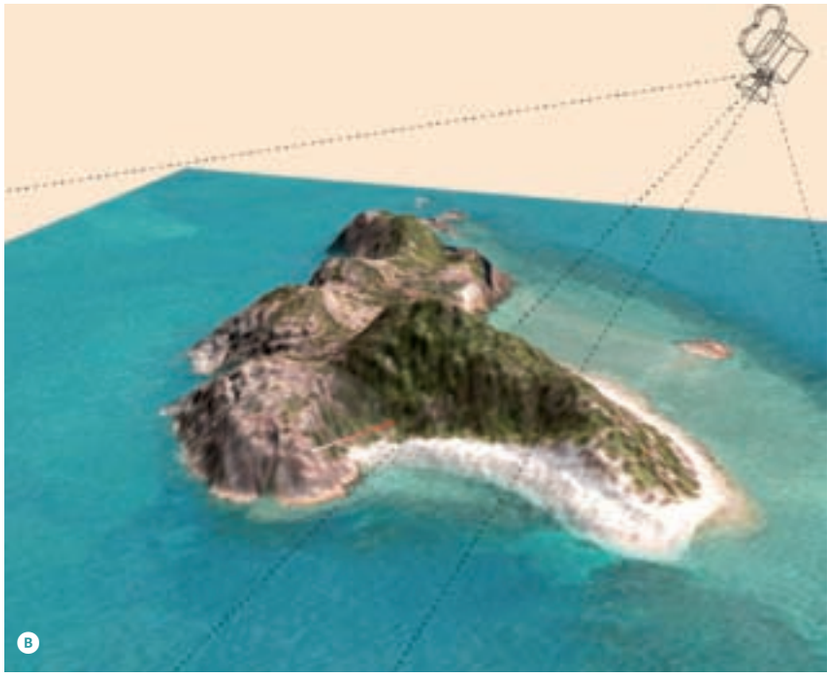
A Vue to the future

The latest solutions for 3D environment creation have been released



B With Vue 8.5 comes the ability to use a bitmap for reference when sculpting in the Terrain Editor

E-on software is one of the leading developers of professional solutions for the creation, animation and rendering of natural 3D environments or digital nature.

With the release of version 8.5 of the company's flagship solutions for 3D environment creation, Vue xStream and Infinite boast a line-up of breakthrough features specifically designed to integrate easily into the existing production pipelines of graphics professionals.

Features promised in the new software include: global gamma control, interactive cloud control, animated planetary cloud density maps and diagnosis render passes. You'll also find unlimited material painting, zone extraction, new terrain sculpting tools and advanced EcoSystem control. Users under the maintenance plan can immediately download the version from e-on's website (www.e-onsoftware.com).

Another improvement to Vue 8.5 is the option for the Z-Depth buffer to now be anti-aliased; you can preview a Dynamic EcoSystem at any time by clicking on the Preview button in the EcoSystem material. Additionally, users can now define their own shortcuts in editors, for example panning and rotating to match settings of other applications.

Both Vue 8.5 xStream and Infinite are shipping now. xStream will retail at $1,495, with Infinite at just $895. To purchase Vue 8.5 with a one-year maintenance plan, the cost will be $1,790 for xStream and $1,090 for Infinite. Those already under a maintenance plan at the time of the release can upgrade their existing version of Vue 8.4 to the new release at no further cost.

> "Users can now define their own shortcuts in editors, for example panning and rotating to match settings of other applications"

The Foundry adds to its award-winning VFX tools

In collaboration with Weta Digital, a new 3D paint tool is introduced

The Foundry has unveiled a new range of industry leading products at the NAB Show 2010, held in Las Vegas. Along with Nuke 6.1 and a brand new range of After Effects plug-ins, a new 3D paint tool was announced called Mari – the product of a collaboration with *Lord of the Rings* effects producer, Weta Digital.

Designed as a full 3D paint tool to compete with even the best 2D painting systems, Weta Digital's texture department developed the tool to handle the massively complex look development work involved in blockbuster film production. Capable of dealing with literally tens of thousands of textures quickly and elegantly, Mari will cope with an obsessive level of detail.

"We are thrilled to add Mari to our product line. The Foundry has worked hard to transform Nuke from an in-house application into the compositor of choice and will dedicate the same amount of energy and effort into ensuring that Mari becomes the 'must have' paint tool for artists. Mari is a great application that we will, with input from the community, make even better and more accessible to artists all over the world," Dr Bill Collis, CEO of The Foundry, has commented.

For more information and to register interest in Mari, visit www.thefoundry.co.uk/mari.

UK is one step closer to 3D transformation

Hollywood hit conversion software, View-D, is launched to UK clients

Following the release of *Clash of the Titans*, in which View-D was used by Prime Focus Los Angeles to convert the 2D footage to 3D in just eight weeks, comes news that the proprietary 2D-3D conversion has now been introduced in the UK. Prime Focus London has implemented View-D into its 3D stereoscopic pipeline for film, broadcast and commercial clients, as well as to help supply content for 3D TV.

With major broadcasters investing in 3D channels and manufacturers introducing domestic 3D TVs, View-D now presents clients with an affordable solution.

"View-D has been a hit in Hollywood and we've had great feedback on the picture quality. The time is right to introduce it to the UK," Anshul Doshi, global COO and group managing director of Prime Focus UK, has said.

To learn more about View-D, visit www.primefocusworld.com/services/products/view-d.

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Industry insider

Olivier Vernay-Kim

Environment modeller, scene assembler

Each issue, 3D Artist finds out how people in the 3D industry got their jobs and what you need to know to get a foot in the door yourself

About the insider

Job Environment modeller, scene assembler

Education Supinfocom School, specialisation in 3D computer graphics

Company website www.blur.com

Personal website http://oli.vernay.free.fr

Biography I've been an environment modeller and scene assembler at Blur Studio, Los Angeles for almost three years now. Before that I was living in Paris, operating as a freelancer. I've been working mostly on video game cinematic and trailers

© Olivier Vernay-Kim/Cryo Interactive

A

Olivier Vernay-Kim, 3D environment modeller and scene assembler, is a designer with a passion for personal exploration. The journey of his own career starts with a young designer working for many years as a freelance artist from a base in Paris. Exploring his potential in the video games industry, Kim soon jumped at the chance to migrate to sunnier climates – namely California.

He has since become an integral creative cog in the Blur Studio (www.blur.com) machine, working on easily recognised projects such as *Star Wars: The Old Republic* and *Mass Effect 2*. He operates software such as 3ds Max and ZBrush to achieve his creative goals and delivers breathtaking environments for everyone to appreciate. Here, we present a selection of his imaginative works and explore this artist's sensibilities towards designers' fantastical and realistic scenarios.

3D Artist: *Can you tell us how you obtained your job at Blur Studio, and what your specific role involves?*
Olivier Vernay-Kim: I got this job via a previous French co-worker, Jérôme Denjean, who had already been at Blur Studio for four years. He saw my environment work on the *Ghost Recon* trailer then asked me if I'd be interested in moving to California. Of course I said, "Yes" immediately.

Now I usually start a project by modelling, texturing and lighting an environment. Depending on the project, I may have to follow a concept – usually it comes from a Blur concept artist, but the client may provide an already existing concept. Sometimes, if there's no specific design, I use only reference pictures and my imagination. Then comes the time for scene assembly, where I put together the environment, point-cached characters, props, hair, special effects and finally composite in Fusion software.

3DA: *What experience has shaped your success as a freelance and studio designer?*
OVK: Since I was a kid, I've always been in touch with the graphic arts. Maybe this helped with my self-confidence. Also, going to a school like Supinfocom, and being able to work on a short film with other students, was a great opportunity. But I think the most determining factor was my three years at games company, Cryo Interactive Entertainment in Paris. During this time, I practised modelling, texturing, environments, characters, FX, rigging, animation and compositing. I know many people who are very successful in the CG industry but have a totally different background. The one trait anyone really needs is passion.

3DA: *What key skills do you believe an artist needs to succeed as a 3D modeller in the gaming industry?*
OVK: From what I know, the most key skill for being an environment modeller is to understand and be able to articulate all kinds of environments. This includes styles such as interiors, exteriors, industrial, landscapes, cities, etc. It's very important to have a good understanding of how things are arranged together in nature or when man-made.

For instance, if you scatter some vegetation on the ground, the density, distribution and scale can be very different depending on the kind of vegetation and the environment itself. This is the same for man-made objects, such as buildings in a city or pipes and wires in a factory. Each element should be arranged in a logical way to avoid inconsistencies.

More on the 'tips and tricks' side – it's always worth spending a couple of hours searching for some references when starting on a new project. It's the best way to accumulate practical knowledge.

3DA: *Can you reveal which key areas of the design process you contribute to?*
OVK: It depends on the project I'm working on. Most of the time I must follow a concept, which is usually quite detailed. It leaves room for interpretation, as opposed to character modelling where you usually have to match some precise shapes and colour. Sometimes the concept is very rough, giving a basic guideline of what

B

Portfolio highlights

Olivier has worked on some high-profile projects including:

2009 *Mass Effect 2* (trailer)
2009 *Star Wars: The Old Republic* (trailer)
2008 *Wolverine* (cinematic)
2005 *Café Bouillu* (music video)
2005 *Ghost Recon Advanced Warfighter* (trailer)

A Louve: Thorgal's daughter. Made for a game based on the *Thorgal* comic strip

B Suburbs of Mexico City: Improved version of an environment made for a *Ghost Recon 3* trailer

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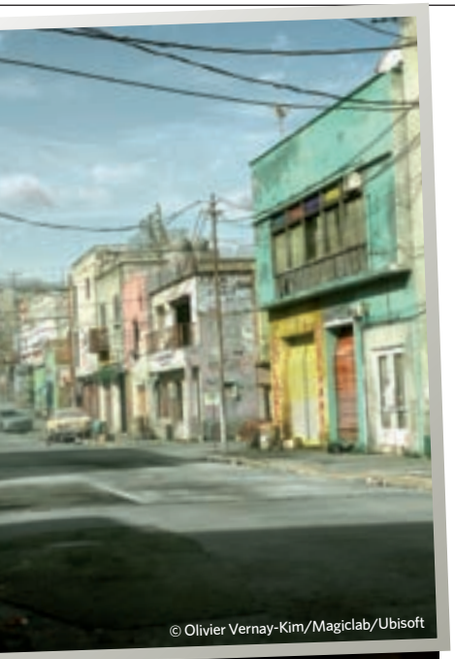
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the client wants. In some cases there's no concept at all, so you can freestyle. You'll never do exactly what you want, but these projects are a good opportunity to express your own creativity to a certain extent.

3DA: *Do you find time to be creative outside your work role, and does this influence your professional design?*
OVK: I have a couple of personal projects that have been in the progress stage for many years and might stay like that forever. I'd like to do more of these projects, but it's hard to find the time. Especially since my kids were born – I like to spend more time with my family. It's also hard to find the motivation after a full day's work at the company. Maybe it's just that I like the projects I'm working on at Blur, so I don't feel the need to do more at home.

At home, I'm usually testing out some techniques, new software, plug-ins, asking myself how to do a certain thing. I'm mainly using 3ds Max and sometimes ZBrush to achieve this. I've been using Max for about 12 years now – including during my studies.

Sometimes it ends up being a personal project, and yes, it can be very useful for professional projects too. On the creative side, personal projects certainly influence some of my everyday works. This said, it would be hard to find a concrete example, as I think it's happening more on an unconscious level.

3DA: *Most of your CGI/3D work seems to be grounded in the games industry. But does your animation work provide a refreshing alternative?*
OVK: My first job was at a games company – it's followed me since then. Until now, I've always found a job at companies doing more or less video game stuff. I'm not a big fan of games in general, but, for an environment modeller, my personal opinion is that doing game cinematics is more gratifying than commercials. Although pre-calculated games trailers can be considered commercials, movie trailers or regular commercials for products are usually not the same kind of work.

3DA: *Do you apply CGI and 3D in any other design areas? If so, can you explain where and how?*
OVK: At Blur, the only non-game related project in which I participated was a 3D-animated ride for a theme park. Both the ride and the park are still in construction, so I can't show anything of what I did. But it was a very interesting project. We had a lot of freedom.

At a previous company – Magiclab – I worked not only on game cinematics and trailers, but also on many commercials and some music videos, as well as an architectural visualisation project. I spent two years there and it was a great experience.

3DA: *What new projects do you have in the pipeline that you are excited about?*
OVK: I'm working on a big game trailer but I'm not sure if I can reveal what it is, so let's talk about personal projects. I haven't really got started yet, but for my next personal project, I'm thinking of a nature scene with something crazy happening on a lake's shore, involving a furry animal. It'll serve as a study of vegetation, rocks and mountains. I'll be modelling water, wet materials and fur. That's what I like making the most, doing exterior scenes, landscapes, etc.

3DA: *Can you tell us a bit about some of your favourite works?*
OVK: I'm always starting professional projects I love to work on. I find a good camera view, add some details here and there, change the lighting and add some materials, etc. When I spend weeks working on professional projects that I really like, I find it cool to emphasise and add more of my personal touches to it.

One of my favourite pieces is *Suburbs of Mexico City* – an image I produced in 2006, made from various assets that I created for a *Ghost Recon* trailer. While working on the trailer itself, I accumulated a lot of references as there was no concept design at all. I decided to make a more elaborate version of this environment. It was really interesting to do. I learned a lot during the process of making this one.

3DA: *What would be your dream project and why?*
OVK: If it were a professional project, it would be a long-term one, with no defined deadline. I'd have a single camera travelling slowly through an expansive environment with waterfalls, mountains, an abandoned, post-oil crash city with thousands of cars buried in overgrown vegetation and a mile-wide pit filled with broken cellphones. Well, that would be a bit boring to watch maybe, but for me a pleasure to make. I know it sounds more like a personal project, so maybe a dream project can only be a personal one, as professional work is all about compromise.

> "From what I know, the most key skill for being an environment modeller is to understand and be able to articulate all kinds of environments"

C Prince's Desk Room: Where the Prince takes a rest. Made for a *Prince Of Persia 2* trailer

D Grand St Subway Station: Subway station in New York. Made for a *Splinter Cell Double Agent* cinematic

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Studio Access

Iron Man 2

Duncan Evans talks to Katherine Roberts, co-CG supervisor for the film from Double Negative

Double Negative, located in the heart of London's Soho, was set up in 1998 with a team of 30 staff. Since then the company has grown to 750+ staff, making it Europe's largest provider of visual effects for the film industry. In 2009, Double Negative opened the doors to its Singapore office **www.dneg.com**

Project *Iron Man 2*
Description Under pressure from the government, the press and the public to share his technology with the military, Tony is unwilling to divulge the secrets behind the Iron Man armour because he fears the information will slip into the wrong hands. With Pepper Potts (Gwyneth Paltrow), and James 'Rhodey' Rhodes (Don Cheadle) at his side, Tony forges new alliances and confronts powerful new forces in this sequel to the 2008 hit
Country UK
Studio Marvel Studios

They are busy people over at Double Negative, the Soho-based visual effects company that has grown from 30 staff to over 750, making it the largest of its kind in Europe. As well as wrapping up *Kick-Ass*, *The Wolf Man* and *Green Zone*, and getting ready for *Harry Potter and the Deathly Hallows Part I*, Double Negative (DNeg) has recently completed a series of effects for *Iron Man 2*. Last month, we looked at the game spin-off, so now let's discover more about the visual effects in the film itself.

One of the standout early sequences involves racing at Monaco, so did the team have to jet out there and sample the glamour of the circuit for previs? Katherine revealed: "We were supplied with an animatic of the Monaco sequence for planning purposes. This animatic and the associated storyboards were used to inform the shoot. A small DNeg crew attended the main-unit shoot in LA and the second-unit location shoot in Monaco. From the start of the project, DNeg was invited to collaborate on the best way to approach the requirements of the complicated sequence." It wasn't all previs, though, as DNeg then had to do postvisualisation to map out the race, the 'suitup' and also to block out the fight sequence. Because of the complex and evolving nature of the shots, most of the work was done in postproduction, and that involved a lot more work than you might first think.

> "Because of the complex and evolving nature of the shots, most of the work was done in postproduction, and that was a lot more work than you might think"

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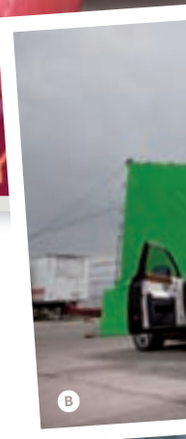

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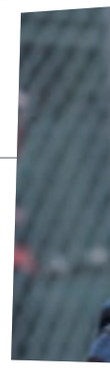

The build was mainly focused around the fight area of the Monaco track – namely stands, fences, buildings and matte paintings, as well as all the yachts docked by the track. Because of the scale of the build in the fight area, DNeg was able to create some completely digital shots as required. There were an enormous number of crowd shots as well, as Katherine explains: "These were done by crowds lead Gavin Harrison. Aside from the stands and yachts in the fight area, most of the race shots

Key people

Katherine Roberts
Co-CG supervisor

portfolio highlights

Here are just some of the major projects DNeg has worked on recently

2010 *Inception*
2010 *Iron Man 2*
2010 *Kick-Ass*
2009 *Green Zone*
2009 *The Wolf Man*
2009 *Sherlock Holmes*
2009 *Angels and Demons*
2008 *Quantum of Solace*
2008 *Cloverfield*
2008 *10,000 BC*
2008 *Hellboy 2*
2008 *The Dark Knight*
2007 *Atonement*
2007 *The Reaping*
2007 *Stardust*
2007 *Harry Potter and the Order of the Phoenix*
2007 *Hot Fuzz*
2007 *The Bourne Ultimatum*
2006 *The Da Vinci Code*
2006 *Children of Men*
2006 *United 93*

A Iron Man Robert Downey Jnr faces off against a variation of his super-powered robotic suit

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C

D

required crowd top-up in buildings and stands by the side of the track, utilising both 'sprite crowds' (essentially video clips of people on cards) and 3D crowds (actual CG characters animated using motion capture data)." There were a small number of shots looking out of the windows of the bar at the start of the sequence that required matte paintings and CG elements such as buildings, roads and cars, as well as additional build work along the trackside throughout the race sequence.

For the race, there were 22 cars in total. DNeg created two highly detailed digital versions of each of the 11 cars which feature in the sequence. Of these, six were modelled in CG, with reference to actual historic racing cars. The remaining five, including Stark's car, were designed and made practically by the production art department (and then promptly smashed to smithereens during the stunts). In the final sequence, you only see practical cars on the start grid before the race begins, while during the stunts, it is completely CG. We asked Katherine what research went into the look and feel of the cars. "Five of the cars were actually built by the production's art department, so we had great access for reference photography. The remaining cars were built from photos of real vintage cars. We also spent a lot of time looking at footage of actual races to get a feel for the way the cars should move and react. The arrival and bar shots at the start of the sequence mainly comprised top-up environment work in the form of set dressing, crowds, vehicles and TV monitors."

After the first few shots of the race, all the cars are completely computer generated – so aside from the cars themselves, there were digi-double drivers, and effects such as heat haze, debris and smoke. Throughout the race, in addition to the cars, each shot required further dressing such as police tape on the fences, crowds in the stands and on balconies, flags and banners – the aim being to give the feel of

B Green screen technology used on set to composite in a new background

C The main sequence that DNeg was involved in features a bust-up on the track at Monte Carlo

D Despite receiving a hammering at the hands of Whiplash, Iron Man is ready to retaliate

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E

F

> For the car cuts, we were very fortunate in that the stunts were done practically. This meant that we had a great place to start from – the practical stunts look fantastic!

a normal race day in Monaco, but with the extra excitement of Tony Stark, aka Iron Man, driving one of the cars! This, of course, leads to the fight sequence. Katherine describes the process. "Because the suitup and fight happen in one particular section of the Monaco track, this is where a lot of our build time went. On one side of the track, we re-created background and foreground buildings, stands, fences, crowds, flags and banners, and on the other side, we had to build more than 15 large yachts, complete with flags, bunting. We also had to create crowd agents reacting to the events that unfold on the track just metres away, all to give a feeling of life."

This leads on to the Whiplash character, played by Mickey Rourke, walking onto the track. His whips power up, burning away his suit, which was a particularly complex shot to produce. Aside from the whip effects, the cloth of his suit had to singe, smoke, catch fire and fall away, all in a realistic manner. You might think that everything in this shot would be CG, but in fact, physical props played a part. Katherine explains: "For the car cuts, we were very fortunate in that the stunts were done practically. This meant that we had a great place to start from – the practical stunts look fantastic! But it meant that there was a huge amount of cleanup work to get rid of the stunt rigs, wires and so on. There are two car cuts in the sequence and both required a similar approach. After the cleanup, the CG cars were tracked to the plate, additional modelling carried out to account for the cuts and damage, and then the effects run off the CG vehicles.

G

E Robert Downey Jnr was filmed in close up for the car race sequence before stunt doubles and CGI stepped in for the carnage

F In this spectacular sequence stunt cars were used to drive into the sequence and crash with DNeg removing wires and stunt rigs

G CGI effects were then applied to create the cut up sections of cars and the pyrotechnics from the whips

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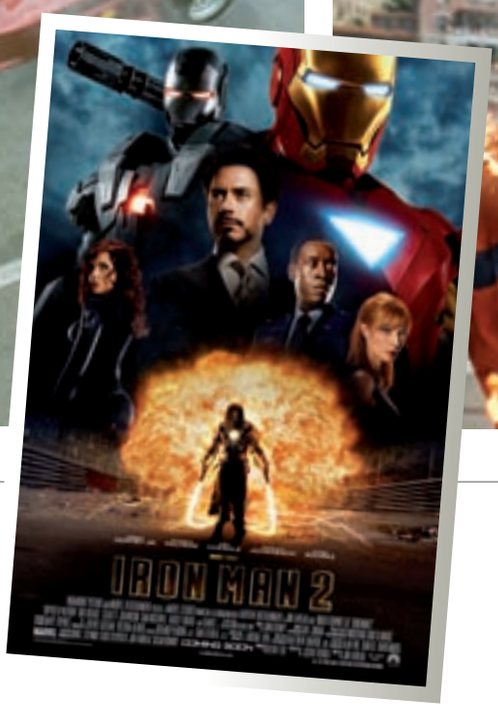
The cutting effect comprised of several layers – sparks, thermite (blobs and drips of melted metal) and smoke. The practical cars had dummy drivers in them, which needed replacing. Practical stunts can be unpredictable, and the best takes were typically the ones where a part of the car broke off and smacked the driver in the head, or the driver's arms sagged outside of the cockpit, or [as happened] in one shot, when the driver's head popped off! There were also some parts of the cars that needed replacing with CG – for example, to cover over parts of the car modelled in to hold the stunt rigs etc."

If, however, you thought *that* sounded complex, it was nothing compared to what came next with the suitcase that turns into an Iron Man outfit and the fight itself. The 'suitup', as it's referred to by DNeg, was probably the most complex scene DNeg worked on, simply because it required so much bespoke modelling and rigging, and each shot fell well outside the general pipeline. It wasn't just a case of breaking down the full Iron Man MK5 suit and packing it into a suitcase. DNeg had a small team dedicated solely to the suitup shots – animator Michael Bomagat, look-dev and lighting artists Ed Kolleon and Josh Herrig, and modeller James Guy (who also modelled the full MK5 suit).

Katherine ran through what was involved in creating this particular sequence. "We were constantly struggling to balance getting enough geometry into the suit as it deployed, so that it felt like it would actually cover Tony once it had completed its transformation, against not putting so much in that it felt magical. We didn't want people to think there was no way all that would fit into such a tiny briefcase. The animation was incredibly complex to get so many pieces moving and reacting together in a believable way, and then making the suit look convincing so close to camera involved a huge amount of bespoke texture, look development and lighting work."

During the Whiplash fight sequence, Iron Man grapples with Whiplash and his electrical whips, sustaining significant damage to his light-weight suit. The damage occurs in a number of stages, and he ended up with eight levels of damage, which involved both texture and modelling work. In addition to the standard whip effects, when the whips wrapped around Iron Man, the metal of his suit started to melt and drip off. This complex system of thermite effects was developed by effects artist Eugénie Von Tunzelmann, and involved generating molten metal, sparks and smoke from the areas where the whips contacted the suit.

Houdini was used to generate the various components of the electrical whips. The whip effect was made of several layers – the plasma running along the core through the whip teeth, tesla or electrical arcing between the teeth. Secondary effects included earthing teslas (eg electricity grounding to the fence, pieces of debris and Iron Man himself), sparks from whip strikes and concrete damage from the whip strikes. The output from Houdini was brought into Maya and rendered through PRman via the DNeg in-house rib exporter 'Rex', and also the in-house voxel-rendering system 'dnb'. Katherine added: "The main challenge that FX lead Joe Thornley faced was to create something chaotic and organic-looking, which complied with two conditions. Firstly that it was easily art-directed to give the performance required, and secondly that it interacted with both the CG elements of the shot (for example, the cars, Iron Man and the digital set) and the shot elements of the scene (for example, Whiplash himself)."



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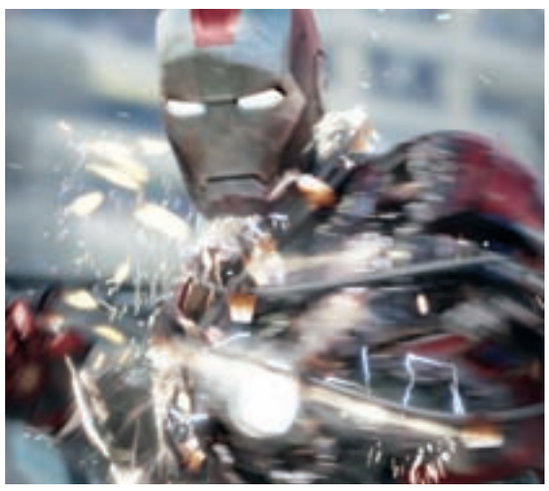

I

H No, they didn't set fire to Mickey Rourke's back, the burning off of the costume was done entirely in CGI

I Special effects needed to interact with the Iron Man outfit so that parts of it could melt and drip off

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+ The best courses and freshest talent from universities around the globe...

Futureworks

Specialising in CGI, videogames, film and TV, and audio, Futureworks helps students develop the skills that future employers will expect of them

Based in the heart of Manchester is Futureworks, a specialist school designed to meet the needs of those looking to pursue a career in CGI and 3D animation. With six floors playing home to high-spec computer labs, creative workstations, studios, editing suites and dubbing theatres, all equipped with the latest industry standard hardware and software, this purpose-built school allows students to focus on producing original and creative work every step of the way.

Futureworks offers both traditional degrees as well as the school's very own industry-focused diplomas. Designed from the ground up, every course is practical and intense, taught by highly qualified tutors who offer guidance and, more importantly, a wealth of hands-on industry experience.

3D Modelling and Animation is a one-year, part-time diploma which covers many aspects of 3D modelling, animation and CGI visual effects, all of which are integral areas of expertise for working in the industry. Designed to start from scratch, students will begin the course with little-to-no experience and leave with the essential skills required for a career in 3D modelling and animation, able to enter fields ranging from TV graphics, game design and visual effects.

The VFX and Post Production Foundation Degree is two years, full-time, covering the main areas of pre- and postproduction that utilise CGI effects. Starting with an introduction to video and film production, students on this course will go on to develop skills in previsualisation, motion graphics, visual effects, editing, content generation and compositing. Upon graduation, they are ready to enter the postproduction industry as a skilled editor, VFX artist and compositor, or create visual effects for film, TV commercials and interactive media.

Futureworks' Diploma in Game Development is a three-year course, which can be entered directly at any year level, depending on experience. The projects and skills taught on the diploma are based on industry expectations, with artists, designers and programmers all working together on the same flexible course. The approach is to get students forming small development teams to create real games using the right tools, whether they're studying art, programming or design specialist modules. On completion of the three-year course, graduates will have the necessary experience to launch their careers as credible games developers.

The Games Design Degree was set up in response to the growing demand for students to be trained with the skills needed to enter the games industry immediately after graduation. Using industry standard software such as 3ds Max and Photoshop, students on this course will develop a portfolio of work demonstrating capabilities in traditional drawing and painting, digital modelling and animation, and game design proposal documentation. Graduates will be armed and prepared to tackle roles such as games designer, level designer, environment designer, concept artist, texture artist, animator and 3D modeller.

Futureworks is a relatively new college with popular courses still in their formative years. If you would like more information on the specialist courses on offer and to find out if it's the right school for you, visit www.futureworks.co.uk.

> "Using industry standard software such as Adobe Photoshop and Autodesk 3ds Max, you will feel as if you have joined a thriving game development team and not a degree course"

Futureworks

Course details

Name 3D Modelling and Animation Diploma
Length One year
Fees £5,500
ENTRY REQUIREMENTS
Basic computer literacy

Name FdSc VFX and Post Production Foundation Degree
Length Two years
Fees £3,290
ENTRY REQUIREMENTS
Basic computer literacy, qualifications equivalent to 120 UCAS points, plus five GCSE passes at Grade C or above, including Mathematics and English

Name Diploma in Game Development
Length One to three years
Fees £2,500 per year
ENTRY REQUIREMENTS
For entry into year one: A real passion for computer games, plus basic working knowledge of Microsoft Windows
For direct entry into year two: Previous experience or demonstrable knowledge in your chosen specialist path
For direct entry into year three: Previous experience or demonstrable knowledge in your chosen specialist path

Name BA (Hons) Degree in Games Design
Length Three years
Fees £3,290
ENTRY REQUIREMENTS
The minimum standard entry requirement for degree-level study is a 12-unit profile, made up from one of the following:
Futureworks Foundation course in Game Art/CGI
Futureworks Diploma in Game Development Year One
At least two A2-level subjects
One A2-level subject plus one single award Advanced VCE
One double or two single award(s) Advanced VCE
Scottish Certificate of Education Higher Grade
Irish Leaving Certificate Higher Grade
International Baccalaureate
BTEC National Certificate/Diploma
Kite marked Access Course

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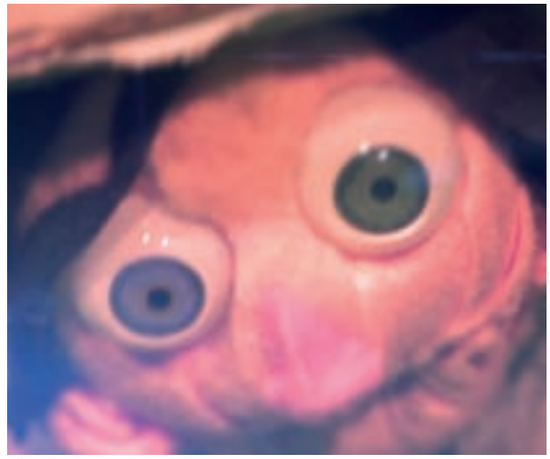

A Group Room
» **Ben Woodbridge, Kirsty Eaton, Raimi Kalam**
Course: 3D Modelling and Animation
Time taken: One month
Software used: 3ds Max, mental ray, Photoshop

B Taj Mahal
» **Matthew Hardman**
Course: FdSc VFX and Post Production

C Ain't No Grave
» **Ben Woodbridge**
Course: 3D Modelling and Animation
Time taken: 17 hours in 3ds Max
Software used: 3ds Max, mental ray, Photoshop

D Year One Coursework
» **Karl Smith**
Course: FdSc VFX and Post Production

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Studio Access

The Prisoner

Duncan Evans talks to Antony Hunt about the re-imagining of classic TV series The Prisoner

CINESITE

With one of the largest and most comprehensive facilities in Europe, Cinesite's visual effects team has the capacity and creativity to produce all manner of effects, both digital and physical, for feature films and broadcast projects of all scales. Its award-winning team of highly talented visual effects artists takes filmmakers' ideas and turns them into spectacular cinematic reality
www.cinesite.com

Project *The Prisoner*
Description Made by HBO, *The Prisoner* is a re-imagining of the classic Sixties series starring Patrick McGoohan. This time round the action is set in a village in the desert of Namibia
Country UK
Studio HBO
Software used Maya, Houdini, Nuke

Key people

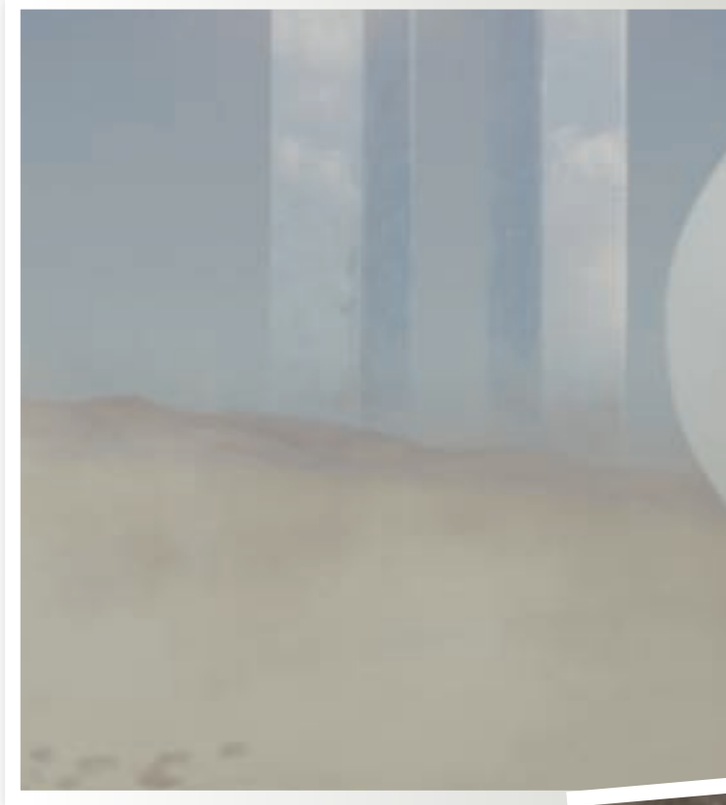
Antony Hunt
Managing director

Swapping an Italian village in Wales for the arid desert of Namibia, *The Prisoner* is a re-imagining of the classic Sixties series that starred Patrick McGoohan. This time round, Jim Caviezel reprises the role of Number Six, matching wits with the sinister Number Two, played by veteran actor Ian McKellen. *The Prisoner* is a tale of a man waking up in an isolated community known only as The Village, where everyone is referred to by a number, and no one can remember how they arrived or what they are doing there. Produced by HBO as six, one-hour episodes, the show made its debut last November in the USA and this April in the UK. It's also available to view through ITV.com's online ITV Player and has been released on DVD and Blu-ray.

As befits a modern makeover, the effects this time round feature lots of CGI, from the killer Rover balloon to set extensions in The Village itself. Visual effects company Cinesite was tasked with a series of creative and challenging effects for the programme. In the remake, the prisoner is a New Yorker, who, on waking, is told that The Village is the only reality, but makes it his mission to discover where The Village is located and why he's being held captive there.

Cinesite completed 150 effects on the mini-series, which included recreating the iconic Rover – a floating white ball that coerces the inhabitants of The Village. Having played a central role in the original Sixties series, it was decided that Rover would return in the remake, but this time the physical weather balloon was replaced by a computer-generated 3D model created in Maya. While creating a CGI white sphere sounds easy, Cinesite faced the challenge of ensuring that the 3D Rover had a turbulent surface and would react convincingly to its environments.

For Rover's establishing shot in episode one, the 3D model was lit by onset HDRI lighting. Cinesite then referenced and rendered it with multi-pass lighting categories, which gave the artist full control of the model in the composite. Six's character was rotoscoped and layers of live action dust were added to help integrate the model into the environment. As the scene continues, Rover begins to suffocate Six. For this sequence, Cinesite generated a cloth simulation over a 3D body double to represent the latex surface of Rover. This element was used in the composite in conjunction with animated grades and defocus work to create the final shot. In the climax of the scene, Rover expands dramatically and looms over Six. Shadow work and surface interaction elements created in 3D and composited with live action dust elements completed the shot.



Ⓐ

Another key scene Cinesite worked on was in episode two. This time, Rover is drowning a different character in the ocean. In the sequence, Rover surfaces from the water and sucks the character backwards. To create the splash generated when Rover surfaces, Cinesite previsualised the shot in 3D and used water elements to create the realistic look of a splash generated by a large, heavy object. The splashes and bubbles were created by Cinesite Production Services and shot as effects elements at Pinewood Studios' underwater stage. The splashes were retimed and composited into the plate together with the 3D model of Rover. The scene comes to a

portfolio highlights

Here are some of the top-notch projects that those clever people at Cinesite have been working on

2010 *Harry Potter & The Deathly Hallows: Part I*
2010 *Clash of the Titans*
2010 *Prince of Persia: Sands of Time*
2009 *Leap Year*
2009 *Sherlock Holmes*
2009 *X-Men Origins: Wolverine*
2009 *Generation Kill*

Ⓐ The original weather balloon Rover has been replaced by a CGI balloon. In the background, the towers are either real or a figment of Number Six's imagination

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B

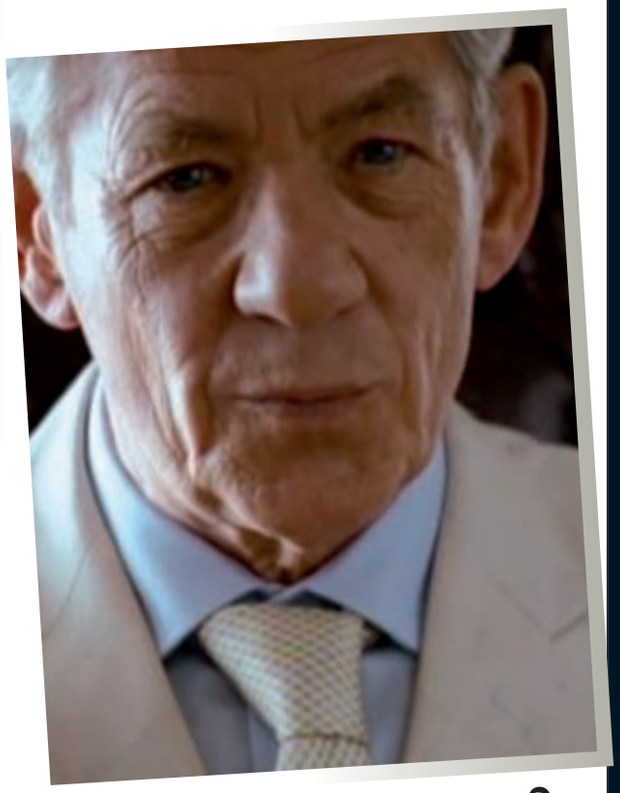
climax when the character is sucked under Rover and drowned. As no live-action footage was filmed of Rover drowning its victim, Cinesite used a clip from Six's suffocation scene and a face replacement.

As well as recreating Rover, Cinesite created large, mysterious towers as 3D elements. Six sees these two structures as a means of escape, and the final look decided on is similar to the twin towers, creating a connection with Six's home town of New York City. They take on an ethereal, mirage-like appearance leaving the audience uncertain as to whether they are real or a figment of Six's imagination. The towers were rendered with a customised 3D glass shader, which reflects and refracts the surrounding environment. In addition, clouds, sun flare, dust and sand elements where included in the composite to help with the sense of distance and scale.

Cinesite also created the holes that are seen in the ground that appear from episode three. The holes represent the gradual collapse of the virtual fabric of the The Village and needed to have the sense of being bottomless voids, into which unfortunate characters fall never to be seen again. The live action footage of the holes dug on set were graded, and 3D

C

> "It was a pleasure to work on this series. Cinesite and Cinesite Production Services were able to provide both digital and practical effects for The Prisoner"
>
> **Antony Hunt** Managing director



D

particle streams were tracked in, as well as dust and smoke SFX elements to create the feeling that the holes were active and unstable.

Additional shots created throughout the series included matte paintings, set extensions, explosion enhancements and rig and scenery removal.

Antony Hunt, managing director at Cinesite, said, "It was a pleasure to work on this series. Cinesite and Cinesite Production Services were able to provide both digital and practical effects for *The Prisoner* so our Soho and Shepperton effects teams were able to work together to recreate the iconic Rover."

B Damn those moles are big. The holes are a metaphysical representation of the disintegration of the virtual environment of The Village. Apparently...

C Splish, splash, it's drowning time. The scene had to be faked to a degree because there was no footage of the Rover actually drowning the victim

D Ian McKellen stars as Number Two, the main antagonist to Jim Caviezel's Number Six

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